



Established 1835.

# The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

An Illustrated Record of Mining, Metallurgical, Railway, Financial, Industrial, And Engineering Progress.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper and for Transmission Abroad.]

No. 3102.—VOL. LXV.

London, Saturday, February 2, 1895.

PRICE ..... SIXPENCE.  
BY POST, 2d 4s. PER ANNUM

A. CORNFORTH AND CO.,  
STOCK BROKERS AND MINING SHARE DEALERS,  
33, OLD BROAD STREET, E.C.; AND  
Mining Exchange, London.

BUSINESS IN ALL CLASSES OF STOCKS AND SHARES,  
SPECIAL BUSINESS in KAFFIR Shares. Prompt Delivery  
made a special feature.

Mining Circular free on application.

BANKERS: CITY BANK.—Telegraphic Address: "Athelney, London."

ASSAY OFFICE AND LABORATORY.  
B. KITTO'S,  
30 and 31, ST. SWITHIN'S LANE, LONDON, E.C.

ASSAYS MADE OF ALL ORES. ANALYSES.  
ASSAYING TAUGHT.

J. S. MERRY AND CO.,  
ASSAYERS AND ANALYTICAL CHEMISTS,  
SWANSEA.

J. A. JONES, Mining Engineer  
(M.Inst.M.M., M.N.Eng., Inst.M.M.E.)  
GIJON (ASTURIAS), SPAIN.

MINERAL PROSPECTING  
AND  
BORINGS FOR WELLS.

Large Experience. Quick Speed. Work Guaranteed.  
APPLY TO

VIVIAN'S BORING & EXPLORATION CO.,  
(LIMITED)  
WHITEHAVEN.

Deepest Borehole in England (3195 feet) put down by this Company  
who have completed about 56 miles of boring.

Telegraphic Address: "DIAMOND, WHITEHAVEN."

PUMPING MACHINERY.

See Illustrated Advertisement every Third Week.

HATHORN, DAVEY and CO., LEEDS.

Messrs. PARKYN and CO.,  
MINE OWNERS AND MANAGERS, CONSULTING MINING ENGINEERS  
AND MINING SPECIALISTS,  
UNIVERSAL MINING OFFICES, ROCHE,  
CORNWALL.

INSPECTIONS, EXPLORING, OPENING-UP and MANAGEMENT of  
MINES undertaken at home or abroad. Have opened a Mining Inquiry  
Department, in which, upon payment of a fee of £5., we reply to any questions  
relating to Mining matters. Should be consulted by all interested in Mines and  
Mineral Properties. Latest information re the Gold Fields of Australia.

CANNOCK CHASE COAL BY CANAL  
AND RAILWAY.

THE COMPANY SEND COAL BY RAILWAY in Trucks to all  
Stations, and load Canal Boats at their extensive Wharves on the  
Anglesey Branch of the Birmingham Canal, adjoining the Colliery;  
and also at Huddersfield Basin, Cannock. For Prices, apply to

J. NEWLAND BROWN,  
WARWICK CHAMBERS, CORPORATION STREET,  
BIRMINGHAM.

Retail Department: COLMORE CHAMBERS, 1, NEWHALL ST., Birmingham.  
London Office: 9 and 10, Southampton Street, High Holborn, W.C.

GOLD ASSAYING, &c.  
GENTLEMEN having only a short time at their disposal can  
obtain SPECIAL INSTRUCTION in ASSAYING ORES of all  
kinds.

For Prospectuses, &c., apply to

MARTIN and PETHYBRIDGE,  
ASSAYERS, &c., LABORATORY AND TESTING WORKS  
183, KING'S ROAD, CHELSEA, S.W.

Complete Analysis of Constituents of any Ore from £1 1s. to £2 2s.  
GOLD ASSAYS CONDUCTED WITH CHECK, 7s. 6d. PER SAMPLE.  
GOLD ORES PRACTICALLY TESTED BY STAMP BATTERY  
And other processes.

ASSAYING AND METALLURGY.  
SPECIAL facilities are given for INSTRUCTION and PRACTICE  
in the ASSAYING and TREATMENT of GOLD and all other  
ores in the Metallurgical Laboratories of Kings College, Strand,  
London. Persons of all ages, are admitted at any time for a period of  
one month or upwards. Special arrangements are made for those  
who cannot devote their whole time to the work. The laboratory,  
besides being open every day, is open 7 to 9 on Friday evenings.  
For further particulars apply to Professor HUNTINGTON.

Messrs. PETER WATSON and Co.,  
8, FINSBURY CIRCUS, LONDON, E.C.  
(NEAR TO THE STOCK EXCHANGE, AND THE MINING EXCHANGE.

ALL ORDERS and TELEGRAPHIC MESSAGES to Buy or Sell Railway,  
Bank, Mine, and other Shares and Stocks punctually attended to, at Net Price,  
for Cash, or for Fortnightly Settlements, with advice as to Purchases or Sales,  
to be addressed to Messrs. PETER WATSON and Co.

Mr. J. GRANT MACLEAN,  
Sharebroker and Ironbroker, Stirling, N.B.  
Refers to his Share Market Report on page 133 of to-day's Journal.

A. and Z. DAW,  
CONSULTING MINING ENGINEERS AND  
MINE MANAGERS,  
11, QUEEN VICTORIA STREET, LONDON, E.C.  
INSPECT AND REPORT UPON FOREIGN METALLIFEROUS  
MINES, AND UNDERTAKE THEIR MANAGEMENT  
AND ADMINISTRATION.

BRITISH GUIANA AND THE NEW GOLD  
INDUSTRY.

BRITISH GUIANA BANK.  
Incorporated by Ordinance of the Governor and Court of Policy of British  
Guiana 11th November, 1836.

Confirmed by the Queen in Council, 6th October, 1838.

SUBSCRIBED CAPITAL..... \$1,400,000 | PAID-UP..... \$926,520  
RESERVE FUND, \$288,000

CHAIRMAN: JAMES THOMSON.

HEAD OFFICE: GEORGETOWN, DEMERARA.

MANAGER: GEO. W. LANE. | ACCOUNTANT: E. J. N. THOMAS.

BRANCH OFFICE: NEW AMSTERDAM, BERBICE,

London..... Smith, Payne, and Smiths,

New York..... Maitland, Phelps, and Co.

AGENTS, British North America. Bank of British North America.

Newfoundland..... Union Bank of Newfoundland.

Current Accounts opened in accordance with the usual practice of Bankers.  
Money Received on Deposit on Interest. Bills of Exchange negotiated.  
Letters of Credit issued by London Agents on Demerara free of charge.  
Raw Gold Purchased or Shipped on Consignment.

Bills Collected and every other description of Banking Business transacted.

THE BANK OF AFRICA (LIMITED).

ESTABLISHED 1879.

Head Office, 113, Cannon Street, London.

SUBSCRIBED CAPITAL ..... £750,000

Paid-up, £250,000; Reserve Fund, £135,000.

General Manager—JAMES SIMPSON, Cape Town.

BRANCHES

Allai North, Cape Town, Cradock, East London, Grahamstown, Kimberley  
King Williams Town, Oudtshoorn, Paarl, Port Elizabeth, Queen's Town  
Bethlehem, Bloemfontein, Fauresmith, Harrismith, Ladysmith, Winburg  
Durban, Newcastle, Pietermaritzburg, Barberton, Johannesburg, Pretoria  
Vryheid, Beira, Delagoa Bay.

The Bank issues drafts, makes telegraphic remittances, buys and collects bills,

and conducts all kinds of banking business.

Deposits received on terms which may be ascertained on application.

R. G. DAVIS, Secretary.

SOUTH AFRICAN TRUST AND FINANCE  
COMPANY (LIMITED).

SUBSCRIBED CAPITAL - - £413,646.

BOARD

B. B. TRENCH, Esq., Chairman.

Sir CHARLES METCALFE, Bart.

L. BALFOUR BURNS, Esq. | GEO. H. RAW, Esq.

Sir STUART S. HOGG.

Head Office:—1, Crosby Square, London, E.C.

South African Office: Colonnade Buildings.

Johannesburg.

General Manager in South Africa:

ROBERT ALLEN.

Manager and Secretary:

JOHN S. SHELDICK.

BANKERS:

London and South Western Bank (Limited).

The Manchester and Liverpool District Banking Company (Limited).

The Standard Bank of South Africa (Limited).

The Company undertakes the following business:—

The skilled investment in South African Mining, Land, or other  
securities for European investors.

Professional and confidential reporting upon companies, mines,  
mineral properties, lands, and generally advising European share-  
holders and others in South African ventures.

Acting as agents on behalf of principals interested in South African  
investments, and for the protection of their interests.

The receiving of money on deposit.

Financing or advancing money to corporations, companies

syndicates, or persons in South Africa.

The purchase and sale of properties, and all classes of South

African securities or interests.

A SPECIAL CABLE CODE FOR PROMPT AND ECONOMICAL COMMUNICA-  
TION BETWEEN THE SOUTH AFRICAN AND LONDON OFFICES.

Further information can be obtained at the Head Office of

the Company.

EDWARD HALSE, A.R.S.M.,  
MINING ENGINEER,

Memb. Inst. Mining and Metallurgy; Memb. N. Engl. Inst.  
Mining and Mechanical Engineers, &c.,  
EXAMINES & REPORTS ON MINES in REPUBLIC of MEXICO,  
APARTADO 512, MEXICO, D.F.  
MCNEILL'S CODE USED.

R. C. CAMPBELL-JOHNSTON.  
(OF SWANSEA, INDIA, AND THE STATES.)

THREE YEARS IN BRITISH COLUMBIA.  
MINING ENGINEER AND METALLURGIST,  
POSTAL ADDRESS: BOX 40 VANCOUVER, B.C.  
CABLE ADDRESS: CAMPBELL-JOHNSTON, VANCOUVER.  
A.B.C. CODE.

MINES EXAMINED AND REPORTED ON, DEVELOPED  
AND MANAGED.

Furnaces, Mills, and Mining Plants Planned and Erected.

ORES BOUGHT AND SOLD.

THE GOLD FIELDS OF WESTERN AUSTRALIA.

ALBERT F. CALVERT,  
MINING ENGINEER.

Author of "Western Australia and its Gold Fields"—"The Discovery of  
Australia"—"The Mineral Resources of Western Australia," &c., &c.  
Editor and Proprietor of the "West Australian Review," a Weekly Newspaper  
devoted to Westralian interests.

Undertakes MANAGEMENT, INSPECTIONS, SURVEYS, and guarantees  
reliable Mining Reports on all West Australian and other Mines.

Writing to the "Financial News" of 23rd November, on the Gold Fields of  
Western Australia, Lord Percy Douglas says:—"From his intimate knowledge of  
the subject, gained by personal experience in Western Australia, as well as on  
nearly every gold field in the world, I consider there is no one better qualified  
to express an opinion on the subject than he (Mr. Albert F. Calvert). In fact,  
he is the only man that I know of in this country who has visited all the gold  
fields of this immense colony."

Address—47, Old Broad Street, E.C.  
Telegrams and Cables—"Quartermaster, London."

J. M. SMITH,  
Late Manager of the "AUSTRALIAN MINING STANDARD," is now  
located at

COOLGARDIE, WESTERN AUSTRALIA,

And is prepared to act as Trustee or Local Agent for English Com-  
panies. Mines Inspected on reasonable fee. First-class Properties  
for Sale. Highest references and credentials.

Use NEALE and MOREING'S Code.

Captain Wm. WILLIAMS, M.A.I.M.E.,  
MINE MANAGER, CONSULTING MINING ENGINEER, &c.

76, Eyre Street, and 25, Mining Exchange,

BALLARAT, VICTORIA,

Undertakes the INSPECTION, REPORTING, and MANAGEMENT of MINES  
and MACHINERY in any part of Australasia. Also the Collection of Mines  
for absentees.

(UPWARDS OF 20 YEARS HIGHEST REFERENCES AND CREDENTIALS.)

WESTERN AUSTRALIA.

Mr. BRENTON SYMONS, F.C.S., M.I.C.E.,  
MINING ENGINEER,

Who has just sailed for the Mining centres of Coolgardie, Murchison, &c., is  
prepared to undertake INSPECTIONS and SURVEYS, and to Report and  
Advise upon Mines, Machinery, &c.

For terms and particulars apply to Messrs. PERKINS and ST. STEPHENS  
Consulting Mining Engineers, 1, Sherborne Lane, King William Street,  
London, E.C.

"AUSTRALIAN GOLD FIELDS:"  
A MONTHLY RECORD OF  
AUSTRALIAN GOLD MINES and  
MINING COMPANIES,

CONTAINING  
The LATEST CABLE ADVICES, MINE REPORTS, &c  
STATISTICS of OUTPUT, YIELD, & DIVIDENDS,  
with MAPS and PLANS of WORKINGS.

COMPILED BY

F. G. McCUTCHEON.

Price 3d.; Post free, 3d.; Annual Subscription (including Postage)  
4s. Gold Mining Shares Bought and Sold. Latest information  
given to Correspondents with reference to Australian Mines.

PUBLISHED AT 5, LOTHBURY, LONDON, E.C.; and at Messrs. W. H.  
SMITH and SONS' Bookstalls. Orders received at all Book-  
SELLERS and NEWS AGENTS.

807 pp. Royal 8vo, Well Bound in Cloth, 21s.

McNEILL'S  
MINING AND GENERAL TELEGRAPHIC CODE,

Containing over Forty-four Thousand Phrases.

By BEDFORD MCNEILL, F.G.S., &c., Mining Engineer.  
"Undoubtedly the most complete technical code existing."

Industries.

LONDON: WHITEHEAD, MORRIS & CO., LTD., 9, Fenchurch St., E.C.

CAPETOWN: E. R. MORRIS, Belfast Chambers.

ADELAIDE, PERTH, BROKEN HILL, AUSTRALIA, E. S. WIGG & SON.

Special business in Cornish shares.

Apply, W. SEWARD

## INDEX TO ADVERTISEMENTS.

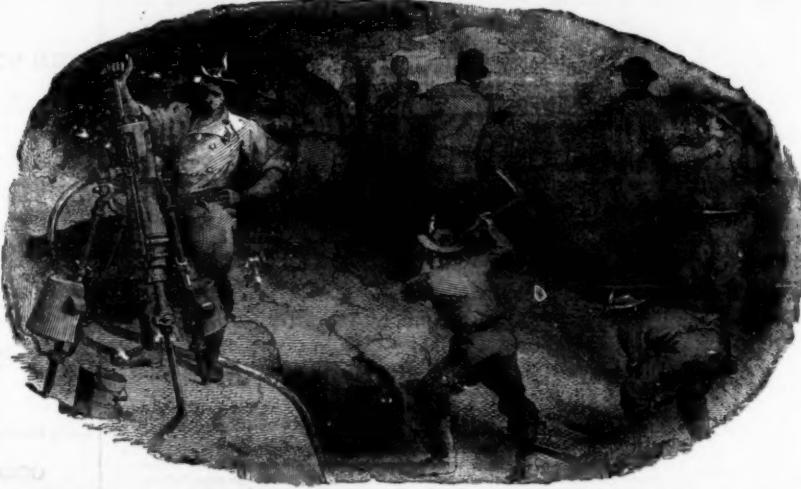
(THOSE WITHOUT NUMBER OF PAGE DO NOT APPEAR IN THIS ISSUE.)

	PAGE.		PAGE.	PAGE.	
Aird, J. ...	144	Gates Ironworks Co. ...	142	Buyers of Lead Ashes, &c. ...	130
Austin, J. B. ...	140	Gilkes and Co. ...	142	Phosphor Bronze Co. (Ltd.) ...	141
Bandell, H. E. ...	130	Green, G. ...	—	Welded and Riveted Pipes ...	142
Bank of Africa, (Ltd.) ...	117	Hardy Patent Pick Co. ...	—	Reliance Oil and Grease Co. ...	142
British Guiana Bank ...	117	Hathorn, Davey and Co. ...	—	Hobey and Co. ...	—
Bennett, Sons, and Co. ...	141	Halse, E. ...	—	Roburite Explosives Co. (Ltd.) ...	—
Bribec Bank ...	142	Holman Bros. ...	—	Ropeways Syndicate ...	—
Browne-Scott and Western ...	144	Howes, S. ...	—	Rose, James ...	—
Bute Works Supply Company (Limited) ...	130	Humboldt Engineering Works Co. ...	—	Royal Mining Academy of Clausthal ...	—
Business Cards ...	141	Humble, S. jun. ...	—	Sales by Auction ...	—
Campbell-Johnston, R. C. ...	117	Huntington, Professor ...	—	Sandycroft Foundry Company ...	—
Calvert, Albert E. ...	117	... Instruciton in Assaying	—	Sandycroft Foundry Company ...	—
Cannock Chase Colliery Company ...	140	Ingersoll-Sergeant Drill Co. of America. ...	118	Mining Machinery ...	—
Cassel Gold Extracting Co. (Ltd.) ...	140	Ireland, James ...	141	Electrical Machinery ...	—
Champion Rock Borer Co. ...	119	... Rock Drills and Compressors	—	Rock Drills and Compressors ...	—
Clarkson-Stanfield Concentrator (Ltd.) ...	121	Jones, J. A. ...	117	Share Dealer ...	117
Clayton and Shuttleworth ...	121	Kitto, B. ...	117	Shipping ...	—
Companies and Legal Announcements ...	140	Krupp Gruauwerke ...	119	Smith, J. M. ...	140
Corncforth and Co. ...	117	Lambert's Wharfage Company ...	130	Mines Inspected ...	117
Cotton Powder Co. (Ltd.) ...	119	Larmuth, T., and Co. ...	143	South African Trust and Finance Co. (Ltd.) ...	—
Davies, Henry ...	140	Lancashire Patent Belting Co. ...	120	Spencer, John ...	117
Davis and Son ...	121	Lancaster and Tonge ...	119	Stanley, W. F. ...	143
Daw, A. and Z. ...	117	Lloyd and Lloyd ...	144	Mathematical Instruments ...	118
Daw, A. and Z. ...	143	Maclean, J. Grant ...	—	Iron and Steel Tubes ...	—
Delta Metal Co. (Ltd.) ...	120	McNeill's Code ...	—	Stewart and Clydesdale ...	—
Dixon and Co. ...	119	Marsden, H. R. ...	—	Iron and Steel Tubes ...	—
Elliman, Sons, and Co. ...	120	Martin and Pethybridge ...	—	Symons, Breton ...	117
Elliman and Co. (Limited) ...	141	Merry and Co. ...	—	Mining Engineer ...	141
Felten and Guilleaume ...	140	Messrs. Parkyn and Co. ...	—	Tacknote ...	—
For Sale ...	140	Miner's Safety Explosive Co. (Ltd.) ...	—	Tangye's Limited ...	—
Francis and Jenkins ...	142	Nobel's Explosives Co. (Ltd.) ...	—	The Royal Bar-Lock Type Writer ...	—
Fraser and Chalmers (Ltd.) ...	118	Pacific Mining Agency and Trust Company ...	130	To Let ...	—
Prictionless Engine Packing Company ...	118	Parkin ...	119	Tuck and Co. (Ltd.) ...	—
				United Asbestos Co. (Ltd.) ...	—
				Unity Safety Fuse Co. ...	—
				Vivian's Boring Co. (Ltd.) ...	—
				Walker Brothers ...	—
				Wanted ...	—
				Watson, P. and Co. ...	—
				Weatherdon, J. H. ...	—
				Wiggin and Co. (Ltd.) ...	—
				Williams, Captain William ...	—
				Wood, Charles ...	—

## ROCK DRILLS FOR STEAM OR COMPRESSED AIR.

AIR COMPRESSORS.

COAL MINING MACHINE.



SEND FOR CATALOGUE.

TELEGRAMS :

"ENYAM, LONDON."

A. E. W. GWYN, Agent.

THE INGERSOLL - SERGEANT DRILL CO., 114a, QUEEN VICTORIA STREET, LONDON, E.C.

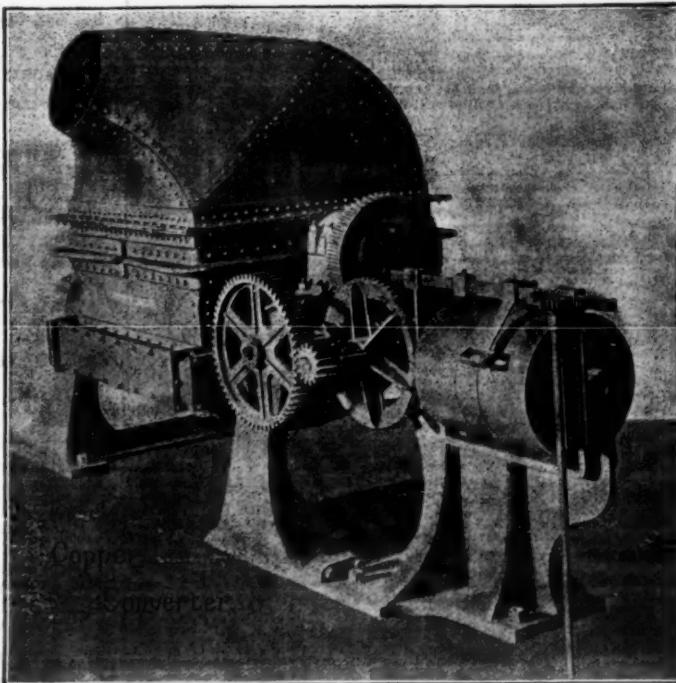
COPPER SMELTING AND REFINING PLANTS.

THE LATEST IMPROVED ROASTING AND WATER JACKET SMELTING FURNACES FOR COPPER AND LEAD ORES, AND EVERY VARIETY OF MACHINERY USED IN MODERN SMELTING, REFINING, AND ELECTROLYTIC WORKS.

SPECIAL EXPERIENCE IN MACHINERY FOR BESSEMERISING COPPER MATTE ALSO FOR THE DIRECT PYRITIC SMELTING OF SULPHURETTED COPPER ORES BY THE AUSTIN IMPROVED SYSTEM WITHOUT THE USE OF FUEL.

Improved Blowing Engines for Refining Works.

SPECIAL CATALOGUES ON APPLICATION



FRASER AND CHALMERS, LIMITED.

Makers of all Classes of Improved MINING, MILLING, SMELTING, CONCENTRATION and LEACHING MACHINERY.

HIGH-CLASS CORLISS AND OTHER STEAM ENGINES, WITH EFFICIENCY GUARANTEED.

BOILERS. PUMPS. HOISTING ENGINES.

PERFORATED METAL WORK. ROCK DRILLS.

DIAMOND DRILLS. COMPRESSORS.

PELTON WATER WHEELS. LEFFEL TURBINES.

FINE CRUSHING ROLLS.

CRUSHERS AND HUNTINGTON MILLS.

RIEDLER PUMPS &amp; COMPRESSORS.

SCHWOERER SUPERHEATERS.

FURNACES FOR PYRITIC SMELTING.

COPPER BESSEMERISING AND REFINING PLANTS.

WORKS—

ERITH, KENT.

OFFICE—

43, Threadneedle St.,

CHICAGO, ILL., U.S.A.

LONDON, E.C.

## THE AFRICAN REVIEW.

THE RECOGNISED ORGAN OF THE SOUTH AFRICAN MINING INDUSTRIES.

Published every Saturday. Price 3d. Subscription 15s. Post Free in the U.K., or £1 1s. abroad, payable in advance. Cheques and Postal Orders to be made payable to WILLS, CANNELL, & RIDER HAGGARD (LIMITED), 10, Basinghall Street, E.C.

Mining News from the WITWATERSRAND and RHODESIAN GOLD FIELDS, the DIAMOND FIELDS, SOUTH WEST AFRICA, MOZAMBIQUE, &c. Special Correspondence from JOHANNESBURG, KIMBERLEY, and elsewhere.

RELIABLE STATISTICS. Financial and Commercial Intelligence from Cape Colony, Congo Free State, East Africa, Egypt, Mozambique, Morocco, Natal, Orange Free State, Rhodesia, South West Africa, Transvaal, &c.

THE AFRICAN REVIEW may be obtained at any of Mears, W. H. SMITH and SONS' Bookstalls, or from our Agents as under:—

London—Blair's, Pott's, and Everett's, Royal Exchange; Leathwaite and Simmonds, 1, Pope's Head Alley, Liverpool—J. Trenwith and Sons, African Chambers. Capetown—Twycross and Co. Kimberley—W. Roper, Advertiser Office. Port Elizabeth—W. Harris and Co. Durban—Bruskill and Henderson. Pietermaritzburg—P. Davis and Sons. Barberton—A. W. Bayley and Co., Gold Field News Office, Johannesburg—The S. A. Publishing Company (Limited), Leakes Chambers, Simmonds Street; The Diggers' News P. and P. Co. (Limited), Simmonds Street. P. Davis and Sons, Pietersburg—Wm. Brown, Zoutpansberg Review, Fort Salisbury (Mashonaland) W. E. Fairbridge.

W. F. STANLEY

Mathematical Instrument Manufacturer

To H.M. Government, Council of India, Science and Art Department, Admiralty, &amp;c.

MINING, SURVEYING AND DRAWING INSTRUMENTS

OF EVERY DESCRIPTION, OF THE HIGHEST QUALITY AND FINISH, AT THE MOST MODERATE PRICES.

Price Lists post free.

Address—Great Turnstile, Holborn, London, W.C.

GOLD MEDAL, Inventions Exhibition, 1885

Mining 1890

THE "LANCASTER" STEAM PISTONS AND TRAPS  
ARE ALWAYS SENT ON APPROVAL.  
LANCASTER AND TONGE, PENDLETON.

ALL ACCIDENTS, RAILWAY ACCIDENTS,  
EMPLOYERS' LIABILITY,  
INSURED AGAINST BY THE  
RAILWAY PASSENGERS' ASSURANCE COMPANY,  
64, CORNHILL, LONDON. A. VIAN, Secretary.

## TONITE

IS RECOMMENDED TO CONTRACTORS, MINERS, PIT SINKERS, QUARRYMEN, AND OTHERS, AS BEING  
THE SAFEST OF ALL EXPLOSIVES.  
TONITE is a most efficient and economical blasting agent, and is largely in demand.  
It is exempt from freezing and the consequent dangerous process of thawing.  
THE COMPANY ALSO MANUFACTURE  
GELIGNITE, BLASTING GELATINE, &c.  
DETONATORS, Suitable for all Classes of Explosives.  
ELECTRIC DETONATORS, High or Low Tension.  
ELECTRIC APPLIANCES, of all Descriptions.  
SAFETY FUSE.

Address—THE COTTON POWDER COMPANY (Limited),  
116, QUEEN VICTORIA STREET, E.C.

IRON ROOFS. HOUSES AND BUILDINGS  
FOR ALL PURPOSES AND ALL CLIMATES

IRON ROOFS  
AND  
BUILDINGS  
FOR

ENGINEERING & STEEL WORKS,  
SHIPBUILDING YARDS, GASWORKS, COLLIERIES,  
RAILWAY, AND AGRICULTURAL PURPOSES.  
Mining Machinery Buildings, Workmen's Cottages & Managers' Houses.  
Special Attention given to Export Work. Constructional Ironwork of all Kind  
Drawings and all Information on Application.

ISAAC DIXON & CO. LIVERPOOL.

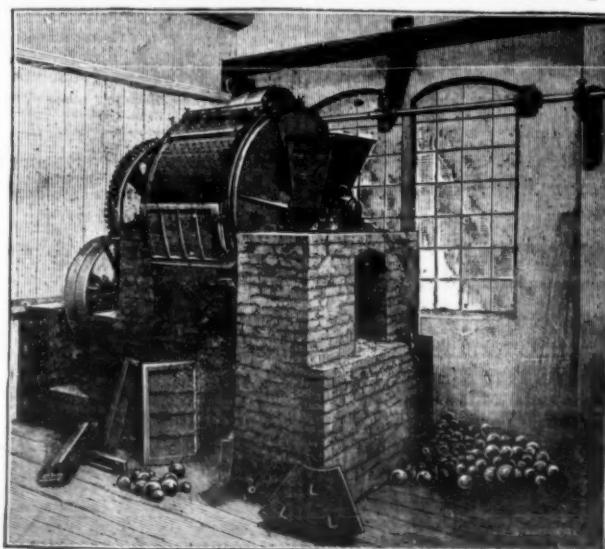
## FRIED. KRUPP GRUSONWERK,

MANUFACTURERS OF MAGDEBURG-BUCKAU.

- 1 Chilled Cast Iron, Cast Steel and Malleable Iron Articles.
- 2 Machinery and Apparatus for treatment of Ores of all description.

### GOLD EXTRACTION MACHINERY:

(*Laszlo' Amalgamators giving 20 to 40 per cent. more Gold than others.*)



### SILVER EXTRACTION MACHINERY.

(*Francke's system. (15 to 20 per cent. better results than old methods.)*)

- 3 Disintegrating Machinery of all kinds, such as Patent Ball Mills for Ores, Quartz, Cement, Basic Slag Grinding, &c. Excelsior Mills for Food Products, also for Tanneries, Chemical Factories, Sugar Factories, &c. Stone Breakers, Roller Mills, Crushers, &c., &c., Runners.
- 4 Whole installation for Cement, Porcelain, Emery, Manure, Gypsum, Bone, & Ore Mills. HYDRAULIC PRESSES. LEAD PIPE PRESSES. COMBINED COFFEE GRINDING AND CLEANSING MILLS. ROLLS FOR ALL METALS. CRANES. RAILWAY MATERIAL.

CATALOGUES IN ALL LANGUAGES.

SOLE AGENT: W. STAMM, 3, EAST INDIA AVENUE, E.C.

ELMSLIE (LIMITED).  
C. T. ELMSLIE, J.P., London. A. B. ELMSLIE, Australia.  
AUSTRALIAN INVESTMENT BROKERS,  
80 to 82, COPTHALL HOUSE, LONDON, E.C.  
With Offices or Agents at all the principal centres in Australia,  
Telegrams "Abelmosk," London.  
Mining and Commercial Investment List and Report for January, containing  
full particulars and prices of the soundest dividend-paying securities of the  
Australian Colonies, yielding to investors from 6 to 25 PER CENT., now ready,  
post free, upon application. Having their own Mining Engineers constantly  
inspecting mines on the various Gold Fields, Messrs. ELMSLIE make a specialty  
of QUEENSLAND and WEST AUSTRALIAN Mining.

## "CHAMPION" ROCK DRILLS

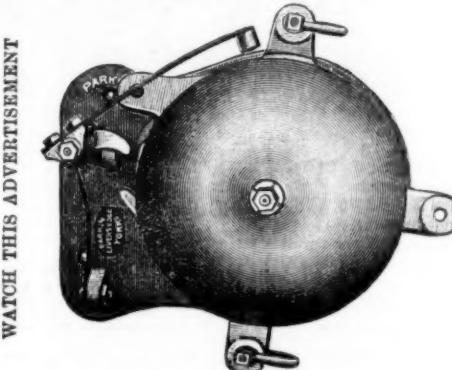
Have all the latest improvements resulting from 10 years' practical experience in constant work.  
Unrivalled for efficiency and durability in  
Sinking Shafts, Driving Levels & Tunnels.



## THE CHAMPION ROCK-BORER AND AIR COMPRESSOR CO.

SOLE PROPRIETORS AND MANUFACTURERS,  
E. P. and H. P. VACHER,  
MAKERS OF ROCK DRILLS, AIR COMPRESSORS,  
TURBINES, WATER WHEELS, WATER MOTORS, RAMS,  
AND OTHER  
MINING MACHINERY.  
63, Queen Victoria Street,  
LONDON, E.C.

Telegraphic Address: "TURNSCREW, LONDON."



EVERY OTHER WEEK.

These SIGNAL BELLS are the BEST and consequently CHEAPEST in the market.

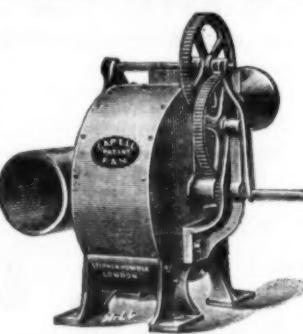
All sizes from 4 in. to 12 in. for all purposes.  
All Fittings steel. No perceptible wear after years of use.  
Simple neat and good. Thoroughly reliable.

Prices and particulars—

## PARKIN, LIVERSEDGE, YORKSHIRE.

SOLE AGENTS FOR SCOTLAND:  
Messrs. ARCHD. BAIRD and SON,  
59-61, WATERLOO STREET, GLASGOW.  
Export Agent—Mr. STEPHEN HUMBLE, Junr.,  
9, Victoria Street, Westminster, S.W.

THE CAPELL  
HAND-POWER MINE FAN  
Hundreds in use driving Air through  
pipes up to 350 yards long.



Stephen Humble, Jnr.,  
9, Victoria St., London, S.W.

## THE WESTERN DAILY MERCURY.

The Paper for News,  
The Paper for Advertisements,  
The Paper for the People.

### THE WESTERN WEEKLY MERCURY.

The Paper for the Household.  
These Journals have an enormous circulation throughout Devon  
and Cornwall, and are conveyed by specially chartered trains.

OFFICES: PLYMOUTH.

## NORTH QUEENSLAND REGISTER,

THE LEADING NORTH QUEENSLAND WEEKLY,  
PUBLISHED AT CHARTERS TOWERS, NORTH QUEENSLAND

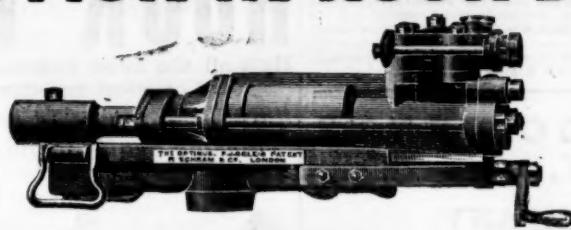
MINING A SPECIALITY.

Subscription £1 4s. per annum; including postage to Great Britain

£1 16s. per annum.

Address communications to—  
THE NORTHERN MINER PRINTING AND PUBLISHING COMPANY,  
CHARTERS TOWERS, QUEENSLAND.

# REVOLUTION IN ROCK DRILLING



## "OPTIMUS" COMPOUND ROCK DRILL.

(P. J. OGLE'S PATENT.)

Consumes 40 per cent. less Compressed Air than any other Drill at the same time giving the most effectual results.

### AIR COMPRESSORS

WITH COMPOUND AIR AND STEAM CYLINDERS,

Fitted with SCHRAM'S Inlet and Outlet Valves giving the greatest efficiency.

### "SCHRAM'S" IMPROVED ROCK DRILLS,

SUPPLIED TO THE INDIAN, COLONIAL, AND OTHER GOVERNMENTS.

2500 IN USE IN ALL PARTS OF THE WORLD.

### Hand-Power Diamond Prospecting Drills.

ESTIMATES AND FULL PARTICULARS ON APPLICATION.

RICHARD SCHRAM & CO., 17a, Great George St., Westminster, S.W.

TELEGRAMS "SCHRAM, LONDON," A1, A.B.C. and The Engineering Telegraph Codes Used.

From His Grace the Duke of Rutland.

Belvoir, Grantham, December 1st, 1879.

SIRS.—Elliman's Royal Embrocation is used in my stables; I think it very useful.

RUTLAND.

Master of the Belvoir Hounds.

From the Earl of Harrington. January 9th, 1889.

SIRS.—Elliman's Royal Embrocation is used in my stables, and I consider it the best that I can obtain. HARRINGTON.

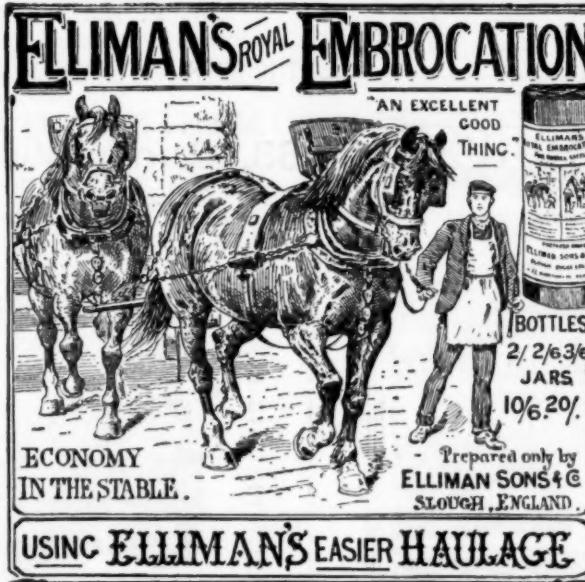
Master of the South Wilts Hounds.

From Major M. J. Balfe, South Park. June 16th, 1892.

Sirs.—Elliman's Royal Embrocation is used in my stables, and I can highly recommend it.

M. J. BALE.

Master of the Roscommon County Staghounds.



From Lord Baddington, Tynningham, Prestonkirk, N.B. December 27th, 1885.

SIRS.—Elliman's Royal Embrocation is used in my stable, and I consider it indispensable in any stable, but especially in the stable of a Master of Hounds.

HADDINGTON.

Master of the Berwickshire Hounds.

From R. Burdon Sanderson, Esq., Warren House, Belford July 10th, 1892.

SIRS.—Elliman's Royal Embrocation is used in my stables, and I consider it very useful.

R. BURDON SANDERSON.

Master of Percy Foxhounds.

From Wm. J. Buckley, Esq., Penyfael, Llanely.

July 16th, 1892.

DEAR SIRS.—I have much pleasure in recommending your Royal Embrocation. I always keep a stock in my stables and kennels. My farm bailiff has also found it of much value among my herd.

W.M. J. BUCKLEY.

Master of Carmarthenshire Foxhounds.

### DELTA METAL

FOR ALL ENGINEERING WORK.

STRONGER AND MORE DURABLE THAN STEEL.

#### Specially Adapted for MINING WORK

on account of its very high Resistance to Corrosion.

DELTA

CAST, FORGED, STAMPED, ROLLED, DRAWN.

For full Particulars and Prices apply to

THE DELTA METAL COMPANY (Ltd.).

110, Cannon Street, London, E.C.

Telegrams:—"DELTA," London. Telephone No. 11292.

### EL MINERO MEXICANO.

The Mining and Industrial Journal of Mexico. ESTABLISHED 1873.

Published in the City of Mexico every THURSDAY in the Spanish Language.

Taken by Mine Owners, Capitalists, Manufacturers, Merchants the richest and most liberal people, all over Mexico.

THE BEST ADVERTISING MEDIUM.

MEXICAN PATENT & TRADE MARK AGENCY, 3A, Independencia No. 1, City of Mexico.

RICHARD E. CHISM, M.E., Editor and Proprietor.

### LIVERPOOL JOURNAL OF COMMERCE

Is the best FINANCIAL and COMMERCIAL PAPER in the Provinces.

Is now Enlarged to Eight Pages.

Contains more Commercial and Shipping News than any other Morning Paper.

Proprietor, CHARLES BIRCHALL, 32, Castle Street, Liverpool

LONDON OFFICE.—38, GRACECHURCH STREET.

## For PURE ALUMINIUM

98 to 99 $\frac{1}{2}$  per cent. (98 per cent. minimum guaranteed) in

### INGOTS, STICKS, & ROLLING SLABS;

ALSO FOR

### SHEETS, &c., AND FERRO-ALUMINIUM.

ALUMINIUM.

HENRY R. MERTON & CO.,

2, Metal Exchange Buildings, Leadenhall Avenue,  
LONDON, E.C.

The  
LANCASHIRE PATENT BELTING  
& HOSE COMPANY.  
(MANUFACTURERS).

### Mining Specialties:—

#### LANCASHIRE Patent Belts

(Waterproof. Heatproof. Rotproof. The Original and Genuine Hair Belting).

#### WIDE "CARRIER" Belts.

(For Collieries, &c. In Hair, Hemp, or Cotton. Any required thickness).

#### HOSE PIPING—Suction and Delivery.

(Vulcanized Rubber and Canvas, or Seamless-woven Flax).

All other kinds of Belting, Hose, and Accessories for Collieries, &c., &c.

Send for complete Illustrated Catalogue to  
The Mills, Tortworth Street,  
Manchester.

### TRIUMPH STEEL WELDLESS CHAINS.

MAXIMUM STRENGTH WITH MINIMUM WEIGHT.



Picture, Sash, and handelior Chains.

Horse, Cow, and Dog Chains.

Rigging and Halyard Chains.

Lavatory Pulls, special design, complete.

Crane, Haulage, and Engineers' Chains.

The Strongest and Most Attractive Chain in the Market.

PRICES AND PARTICULARS ON APPLICATION.

MANUFACTURED ONLY BY  
THE WELDLESS CHAIN COMPANY (LIMITED),  
London Office: ST. HELEN'S, LANCASHIRE,  
101, LEADENHALL ST., E.C.

### THE INDIAN ENGINEER.

AN ILLUSTRATED WEEKLY JOURNAL

FOR

ENGINEERS IN INDIA AND THE EAST.

The "INDIAN ENGINEER" contains the latest and most authentic information on all subjects connected with Engineering enterprise in India and the East.

Subscribers when in England can make use of our London Office (1-2, Victoria Mansions, Westminster, S.W.), and can have letters addressed there and forwarded when travelling.

Correspondence invited on any subject which may be of interest to the profession.

RATES OF SUBSCRIPTION (payable in advance, including a copy of the INDIAN ENGINEER'S DIARY):—

Thick paper Edition, including postage | Thin paper Edition, including postage

Yearly ..... Rs. 20 | Yearly ..... Rs. 15

Half-yearly ..... Rs. 11 | Half yearly ..... Rs. 8

Quarterly ..... Rs. 6 | Quarterly ..... Rs. 5

Published at 5-6, Government Place, Calcutta.

APPLY TO

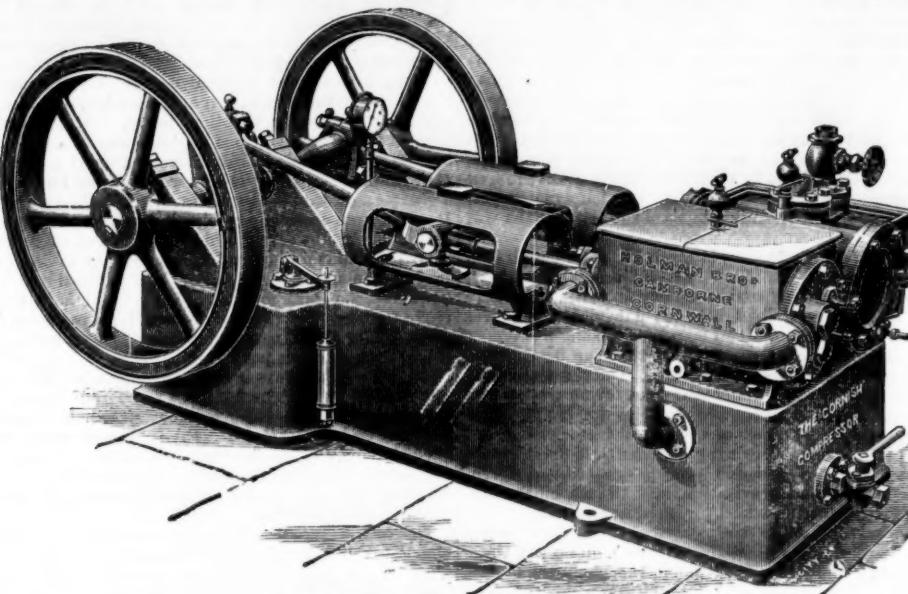
HENRY R. MERTON & CO.,

2, Metal Exchange Buildings, Leadenhall Avenue,  
LONDON, E.C.

# HOLMAN Bros., Camborne, Cornwall.

ESTABLISHED 1839

**Patentees and Sole Makers of**  
**"THE CORNISH" ROCK DRILL and "THE CORNISH" COMPRESSOR**



RECORD OF WORK DONE

At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour

At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET PERPENDICULAR RISE 46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **1 FATHOM 5 FT.** No communication of any kind was effected until hoisting to the Shaft brought down from surface.

**Estimates for ROCK BORING PLANT and GENERAL MINING MACHINERY**  
 on Application.

London Offices: 7 and 9, LEADENHALL BUILDINGS, E.C.

**AWARDS:** CRYSTAL PALACE, 1890; TASMANIA, 1891; KIMBERLEY, 1892.

# CONCENTRATION.

**The Clarkson-Stanfield Concentrator (Limited).**

In the CLARKSON-STANFIELD process of Concentrating Refractory and Complex Ores no water is required; dust is reduced to a minimum; the loss of Mineral through water-borne Slimes is obviated.

**OUTPUT  $\frac{1}{2}$  TO 2 TONS PER HOUR, ACCORDING TO SIZE OF MACHINE.**  
 CONCENTRATOR TO BE SEEN IN OPERATION AT THE COMPANY'S ONLY ADDRESS:

**6, COLONIAL AVENUE, MINORIES, LONDON, E.**

*The Machine is superior to Sieves for Sizing Homogeneous Substances, such as Emery, Sand, and Powders, and may be used to great advantage in the preparation of Ochre.*

N.B.—The owners of the Cardochan Mine, near Bala, North Wales, will, by arrangement, show their CLARKSON-STANFIELD plant working on a Refractory Low Grade Gold Ore.

## CONTRACTS OPEN:

FOR MINE, QUARRY, RAILWAY, AND ENGINEERING WORK, STORES, &c.

**We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract price should be given.**

**The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.**

### HOME CONTRACTS.

**Tram Rails.** February 4 (Manchester).—For the supply and delivery of about 200 tons of Bessemer steel tram rails, with the necessary fish plates, for the Manchester Corporation. Drawing and specification may be seen at the Office Surveyor's office, Town Hall.

**Wagon Stock.** February 4 (Gorton).—For the supply of the following new wagon stock, for the Cheshire Lines Committee:—300 medium, 100 high-sided, 50 covered goods vans, 50 cattle trucks. Plans may be seen and specifications and forms of tender obtained on application to Mr. Thomas Parker, jun., carriage and wagon superintendent, M. & S. and L. Works, Gorton. Sealed tenders, endorsed "Tender for New Wagon Stock," to be sent by post, addressed to Mr. G. G. Thomas, secretary, Board Room, Great Northern Railway, King's Cross Station, London, N.

**Coal.** February 8 (Dartford).—For supply of 100 tons of house coal (best screened Hawthorne or Hetton Lyons, or coal of a similar quality) and 150 tons of good hard steam coal, for the Guardians, to be delivered free at the Dartford Union Workhouse before June 1. Tenders to be delivered at the office of Mr. J. C. Hayward, clerk, Union Offices, Dartford, by 5 p.m. on February 8, endorsed "Tenders for Coal."

**Steel Fence.** February 11 (Kingston-upon-Thames).—For supplying and fixing a steel fence to a portion of the unenclosed part of the Fairfield for the Corporation, in accordance with particulars which will be furnished by the Borough Surveyor. Tenders, endorsed "Fairfield Fence," to be delivered to Mr. Harold A. Winsor, town clerk, Clatterhouse, Hanes, Kingston-upon-Thames.

**Railway Construction (Scotland).** For the construction of a railway in Fife from the end of the Westfield branch of the North British Railway to Kinlossmouth Colliery. For specification and schedule apply to Mr. John Wilson, secretary, Central Fife Coal Company (Limited), 112, Bath Street, Glasgow.

**Sinking Shaft (Denny, Scotland).** For sinking shaft at Castlerankine Colliery, Denny; from 27 to 60 fathoms. Apply to Mr. Robert Thomas Moore, C.E., 154, St. Vincent Street, Glasgow.

**"MOTHER, I AM OUT OF SORTS."**—He who uttered these words was a strongly-built young fellow, with clean-cut, intelligent features, but a glance was enough to show that he was run down by work and worry; his head was heavy, his eyes lacked brightness, he was languid, and the frown of indigation had printed its marks upon his face. "My boy," replied the good and wise mother, "he advised this once by me; let me doctor you." The lad readily assented, and in a trice Holloway's world-famed Pills were produced. They soon did their work, and in a day or two the young fellow went about his work like a new man, filled with strength and energy.

## NEW PATENTS.

LIST of APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railways and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

843 Conrad Christian Severin Knap, f, Livery Street, Birmingham.—Improvements in the fire grates of steam boilers and other furnaces.—January 14.  
 852 John James Hood, 24, Southampton Buildings, Chancery Lane, London.—Improvements in the manufacture of gold solvents.—January 19.  
 902 Richard Paulson Ingleside, Diamond Terrace, Westham, Weymouth.—Improvements in generating and applying motive power.—January 15.  
 952 Benjamin Pryor Stockman, 82, Victoria Street, Westminster.—Improvements in the process of producing malleable iron and steel from phosphoric and other pig iron or ores.—January 16.  
 979 James William McGranahan, 53, Chancery Lane, London.—Improvements in the use of iron and metallurgical furnaces, and in the method of heating the same.—January 15.  
 1011 William Phillips Thompson, 6, Lord Street, Liverpool.—Improvements in packing bolts applicable for removing packing from stuffing boxes of piston rods, valve rods, &c. the like.—January 15.  
 1013 William Phillips Thompson, 6, Lordship Street, Liverpool.—Improvements in or relating to packing for piston rods, valve rods, or the like.—January 15.  
 1025 George Love and Brodie Cochrane, Aldin Grange, Durham.—Improvements in coal and stone cutting and boring machines.—January 16.  
 1038 Joseph Hall, 53, Royal Exchange, Manchester.—High combustion furnaces for steam boilers.—January 16.  
 1060 Victor Karavolin, 25, Southampton Buildings, Chancery Lane, London.—Improvements in generators for producing steam and highly heated fluids.—January 16.  
 1146 Joseph Bertrand and Joseph Barbier, 75, Chancery Lane, London.—Improvements in expansion joints for steam and other pipes.—January 17.  
 1155 Charles Denton Abel, 28, Southampton Buildings, Chancery Lane, London.—Manufacture of alloys of iron with other metals.—January 17.  
 1158 Herman Weiland, 42, Neuenweg, Barmen, Germany.—Improvements in motors.—January 17.  
 1162 Anders Borck Reck, 63, Fore Street, London.—Improvements in steam boilers.—January 18.  
 1268 James Frederick Lockette, 45, Southampton Buildings, Chancery Lane, London.—Improvements in steam generators and in relating to furnaces used in connection therewith.—January 18.

### SPECIFICATIONS PUBLISHED.

18002, Armanni, metal cutting and stamping presses, 1893; 3400, Robinson, steam, &c., engines, 1894; 3911, Marriott, miners' drills, &c., 1894; 4080, Brook, steam generator, &c., furnaces, 1894; 7140, Porter, steam engines, 1894; 21186, Heyn (Hermann) steam engines, &c., 1894; 22342, Dahlmann, miners' safety lamps, 1894; 23003, May, steam boiler, &c., furnaces, 1894.

The above specifications published may be had of Messrs. Rayner and Co., 37, Chancery Lane, London, at 10d. each including postage.

# JOHN DAVIS & SON,

ALL SAINTS WORKS, DERBY;  
 118, NEWGATE STREET, LONDON, E.C.

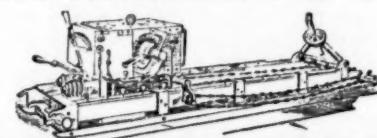
## ELECTRIC LIGHT & TRANSMISSION OF POWERPLANTS

### Jeffrey Machines for Undercutting Coal,

WORKED EITHER BY ELECTRICITY OR COMPRESSED AIR.

OVER 500 IN USE.

FULL PARTICULARS UPON APPLICATION



### ELECTRIC BLASTING APPARATUS

HIGH OR LOW TENSION SYSTEMS.



REVISED CATALOGUE UPON APPLICATION.

SEC. A. MATHEMATICAL, MINING INSTRUMENTS, MINERS' LAMPS, &  
 SEC. B. ELECTRICAL PLANTS AND FITTINGS.

### HENDERSON'S RAPID TRAVERSER.

### THE GLASGOW HERALD

(ESTABLISHED 1782)

IN THE  
 LARGEST & LEADING ADVERTISING MEDIUM  
 OUT OF LONDON.

It is next to *The Times* and *The Daily Telegraph*, each of which it exceeds in extent of Advertising during several months of the year. It is unrivalled among Daily Papers for the completeness of its Reports of the Mining and Metal Markets, besides Commercial and General News for all classes of the community.

HEAD OFFICES: 63-69, BUCHANAN STREET, GLASGOW  
 LONDON OFFICES: 65, FLEET STREET.

## ANSWERS TO CORRESPONDENTS.

Correspondents will please take note that all communications will in future be answered in this column and not through the medium of the post. All questions and replies should be accompanied by the name and address of the writer.

### REPLIES.

G. S.—Sell out.  
 J. P.—Take a profit when you can.  
 G. D.—The shares are likely to go still better.  
 W. H.—They seem to be worthy of holding.  
 DERBY.—They are selling quite high enough, in our opinion.  
 A. C. (Devon).—It seems to us that they are all good to hold.  
 T. C.—They appear to be a fair purchase at present price.  
 ANXIETY.—It would be just as well for you to sell at the present price. The prospects of any improvement are very remote.  
 G. F.—Of the securities you mention we should prefer Nos. 1 and 3. We cannot advise a purchase of the others.  
 J. F. W.—We do not care to recommend you to have dealings with the firm.  
 MERLIN.—(1) Keep your shares; they will soon be exchanged for the same number of shares in the United Rhodesia Gold Fields, a company which is powerfully backed up. Sell 2, 3, and 4.  
 CAMBERWELL.—Sell 1, 2, and 4, but hold. We have received no intimation that dividends will shortly be declared by 2, 3, and 4. It seems doubtful.  
 W. W.—We think there is a good prospect before this company.  
 J. M. P.—Keep them.

BOTALLACK MINE FLOODED.—On Tuesday afternoon a very unfortunate occurrence happened at the Wheal Cock part of Botallack Mine, St. Just, through the giving away of the weir or dam that kept the water from the North Fields part of the mine. To lessen expenses it was thought wise to build a weir at Wheal Cock to keep the water and stop the engine working at North Fields. On Tuesday the weir gave way and flooded the mine, and the result is that all the men have been thrown out of employment.

## DRY CONCENTRATION IN NORTH WALES.

(BY A CORRESPONDENT.)

VARIOUS attempts have been made, from time to time, to treat the auriferous deposits in North Wales, but little success has, so far, attended these efforts. Three gold mining fevers have broken out, and in each a fair amount of work was done at one or two mines, and a large amount of scratching at others, but failure has generally resulted. No permanent industry has, as yet, been established, although for the number of tons treated, I believe the returns per ton will, in North Wales, compare favourably with any known gold field, Western Australia, probably, excepted. Up to quite a recent date, the high royalty demanded by landlords and the Government, and the difficulties of securing a "quiet enjoyment" of tenure, no doubt acted as a great deterrent to adventurers. Company promotion in gold mining, and the insufficiency of working capital usually attending such schemes, no doubt partially accounted for the failures, but I think that the want of success can be traced to the fact that the Welsh gold ores are of a very refractory nature, and not amenable to the ordinary quicksilver methods of extraction. More impetus has been given to gold mining during the last few years than probably at any previous time. We are told by political economists that, if we had more gold, trade would be better, and, doubtless, in these bad times, when every producer is trying to undersell his neighbour, there is some method in the man's madness who puts his money into gold mining, for he knows perfectly well that nobody can undercut him in the sale of his gold. New machinery and new chemical processes are invented almost daily to recover a higher percentage of gold than was ever obtained before, so that one gets somewhat tired of the hackneyed phrase of "revolutionising" the gold mining industry.

I recently heard that one of these gold savers was being tried at one of the mines in North Wales, and being in the neighbourhood, and interested in the subject, I obtained permission to inspect it. The mine in question is situated at the top of Bala lake, and, from information supplied me by the present workers, was opened out in the gold fever of 1863-5, when 3000 tons were crushed with old Cornish stamps and Bardon pans, and 1500 ounces melted gold recovered. The mine paid tolerably well while the oxidised ores were being treated, but when the sulphides of zinc and lead were met with, the monthly returns soon failed to pay wages, and the mine, like many others in the neighbourhood, was abandoned. A few years ago the mine was re-opened by private enterprise, and for four years steady development work has proceeded. Every penny expended has gone into the mine, which makes it unique in this respect. When the owners had carefully studied the nature of their ore, and developed many thousands of tons, they looked round for a plant which was most likely to treat their low-grade sulphide gold ore. Let me give these gentlemen credit for their boldness in selecting one of the new processes—in fact, a process which had never before been tried at any mine; but from the work which it is now doing I have no hesitation in saying that a very wide field is open to it, not only in North Wales, but in all countries where low-grade rebellious ores are to be treated, or where there is a scarcity of water. Before describing in detail the mill and plant, I will, parenthetically, say a word or two on this new process, which I have enquired into.

In 1889 a dry concentrator was invented by Mr. Thomas Clarkson, Demonstrator of Metallurgy at King's College, and Mr. Richard Stanfield, student at the Royal School of Mines, and since Professor of Engineering at the Heriot-Watt College, Edinburgh. Both these gentlemen were Whitworth Scholars, which ranks them amongst the first of engineering students of their day. The joint production of such men, who knew exactly what was required, ought to have been a guarantee of an efficient machine, but thousands of inventions by men as clever as Messrs. Clarkson and Stanfield have never emerged from the laboratory stage. This machine, which for simplicity and ingenuity could scarcely be excelled, was introduced to the mining world at the International Exhibition, at the Crystal Palace, where it attracted a great deal of attention.

A small syndicate was formed to develop the process, and then came the difficulties which are always met with when the invention is applied to the ordinary conditions of a mining field. Ore as it comes out of a mine is not always dry—when crushed in bulk—a large amount of slime is made, and this had to be reckoned with; for efficient work the ore had to be graded—another problem—so that nearly four years elapsed before these and other difficulties had been satisfactorily surmounted.

After this digression I will proceed to describe the mill and the dry crushing and concentrating plant which has been erected at the Carn Dochan Mine. I am not sure whether this is not the first attempt at dry crushing and direct concentration combined. Dry crushing by means of rolls has been long practised in the Western States of America, but I doubt if this has been followed by any means of direct concentration by the dry method. North Wales is, *par excellence*, an admirable district to test the capabilities of a dry crushing plant. The more than average rainfall renders the vein stuff (at least the containing walls) continually damp, and the mountain mists in winter charge the atmosphere almost to saturation point.

The mill, consisting of three floors, is built in a very substantial manner, and it would gratify your able correspondent, Mr. Phillip Argall, of Denver, to know that it is on the flat, although the situation would have permitted a terraced form. Elevators and conveyors are utilised, so that the ore is never handled from the time it is fed into the first rock-breaker until concentrates are bagged. The motive power to work the machinery is generated by a "Jonval" turbine working under a head of 65 feet, and developing about 60 h.p. The ore is brought from the mine by a tramway, and delivered to the drying chambers on the top floor of the mill. The floor of these chambers, which are practically air-tight, consists of iron bars placed about 1 inch apart. The ore is dumped on to these grids to the thickness of about a foot. A partition divides these rooms, about the middle of which shoots lead to the first rock-breaker, so that ore can be fed from these rooms alternately. Outside the mill, opposite the dividing partition, a Blackman fan is so fixed that by shutting off one chamber a strong current of dry air is drawn through the body of ore deposited in the other, and *vice versa*.

The heated air produced by a fire on the ground floor of the mill is conducted through pipes to the under-side of the drying chambers, and drawn by the fan through the ore, and discharged into the atmosphere. The ore is thus quickly and effectually dried at a very small cost. From the drying chambers the ore is shovelled into the feed hopper of No. 1 rock-breaker of the Blake type, from which it passes considerably reduced in size, through a revolving trommel with  $\frac{1}{2}$  inch punched holes. This trommel delivers the rough portions of the ore to No. 2 rock-breaker, where it is further reduced in size, and thence it passes

by gravity to a Dodge crusher, which gives a product of about  $\frac{1}{2}$  inch.

From the Dodge the ore is elevated to the first trommel, so that, up to this point, everything is reduced to pass a  $\frac{1}{2}$  inch hole. The ore is now elevated to the top of the mill by No. 2 elevator into a double trommel, the inside plate having perforations of 1-10th inch, and the outside covering being a 30 mesh wire sieving. The ore which passes the 30 mesh is sufficiently reduced for the sizing and concentrating, which forms the second part of this interesting installation. The ore between 10 and 30 mesh falls down a shoot to the feed hopper of a set of high-speed Krom rolls, by which it is reduced to such a degree that it will pass the 30 mesh sieve in the above-described trommel, being continuously conveyed there by the No. 2 elevator, the boot of which is in connection with the delivery spout fixed beneath the rolls. The whole of the ore thus being reduced to pass a 30 sieve goes to the slimer, which extracts the fine impalpable powder, and collects the same in a cyclone dust chamber. Thus slime in the Carn Dochan ore is nearly barren of mineral, but in cases where the gold is in a very fine state of division or "float," the contents of this dust chamber is a rich concentrate, thus demonstrating one of the advantages of the dry over the wet process.

After passing the slimer the ore is graded into the following sizes—30 to 35, 35 to 42, 42 to 50, 50 to 70, 70 to 90, 90 to 120, and under 120. Two systems are in use for this classification, (1) ordinary reels as used by millers, and (2) flat vibrating sieves operated by a triangular cam. The latter form being extremely efficient and so simple in construction that they can be made on any mine, will probably supersede the reels. The sized ore is then passed into bins capable of holding many tons. From the bottom of these bins a spout leads to the boot of elevator No. 3, which conveys any grade to the hopper of the concentrator.

The action of the concentrator or distributor is based upon the joint operation of the three powers—centrifugal force, atmospheric resistance, and gravitation, and the machine somewhat resembles a "catherine-wheel" worked horizontally.

Pulverised ore is fed on to the centre of a rapidly rotating disc grooved with a number of radial channels, and on it there fits a solid cover. The ore passes along the channels, and is ejected at the circumference with an uniform velocity. The particles of rich and heavy ore, by reason of their superior inertia, are thrown to a greater distance, while the worthless particles, being lighter, are more quickly overpowered by the force of the atmospheric resistance and gravitation, and thus fall short.

The collection of the ejected ore in annular receivers at various distances is thus easily accomplished, and, in fact, goes on continuously, while the ore is being shot out. Means are also provided for regulating either the centrifugal force or the atmospheric resistance, according to the nature of the ore.

There is nothing in this machine resembling the shaking and blowing method by which dry concentration has hitherto been attempted.

The ore at present worked is very low grade, containing about 10 dwts. bullion (3 to 4 dwts. gold and 6 to 7 dwts. silver). The first concentrates, from numerous assays I have seen by Mr. W. Foulkes Lowe, assayer for the counties of Flint, Carnarvon, &c., contain 50 to 60 ounces bullion (17 to 20 ounces gold and 30 to 40 ounces silver, 30 to 35 per cent. lead). The second concentrates run about 20 ounces bullion, and the intermediates assay about 8 dwts. bullion. These latter are retreated, the heavy sizes by passing again to the rolls to be further reduced, and the fine sizes by passing again through the distributor. These three products contain about 10 per cent. of the quantity crushed, and the 90 per cent. tailings, in most instances, are barren. These tailings thrown on the inner compartments of the receivers fall by gravity down an inverted cone, and by means of a creeper are conveyed to the dump, the arrangements being so complete that all handling is dispensed with. The bins placed at different stages of reduction, classification, and concentration give great elasticity to the system, and neutralise the effect of one set of machines gaining on the other. Any heavy gold in the ore which, being slightly flattened by the rolls prevents it passing the 30 sieve, is recovered periodically by stopping the crushers for a few minutes, and emptying the feed hopper to the rolls. From a close estimate made of the loss—and this can be easily done in the dry process, as everything is to be accounted for—the machine is recovering between 75 per cent. and 80 per cent. of the actual value of ore. The product is sold to the Swansea smelters, who give a full market price for the gold, silver, and lead, the latter two being by-products and not recoverable by the ordinary method of a stamp battery.

The mill is kept comparatively free from dust (1) by the cyclone dust chamber drawing it away at an early stage; and (2) by means of a fan which sucks away other particles made by the crushers. The plant is treating a ton an hour, and only four men are required to attend to it—one to feed into the rock-breaker; one to watch the sieving; one to attend to the concentrator; and the fourth to lubricate machinery, watch the fire, &c. The first could do double the work, and the last three could attend to three or four times as much machinery. When a double shift is being worked for 16 hours a day, which is now contemplated, I am told that mining, milling, and concentrating will be performed for about 5s. or 6s. per ton.

**TRANSVAAL ESTATES AND DEVELOPMENT.**—An adjourned extraordinary general meeting of the Transvaal Estates and Development Company (Limited) was held on Monday, at Winchester House, for the purpose of considering the following resolutions:—1. That this meeting approves and ratifies an agreement dated 12th December, 1894, and expressed to be made between the President Land and Exploration Company (Limited), of the one part, and this company of the other part, being an agreement for the sale by the President Land and Exploration Company (Limited), to this company of the several farms, live and dead stock, and goods and effects therein described, for the sum of £64,300, to be satisfied by the allotment of 64,300 fully paid shares of £1 each of this company, and authorises the directors to carry the same into effect. 2. That the capital of the company be increased to £389,300 by the creation of 64,300 new shares of £1 each.—Mr. G. M. Kiell, who presided, moved the adoption of the resolutions, and stated that the President Land Company had that day approved of the proposed arrangement. The directors of this company were unanimously of opinion that this was a safe and desirable transaction for the shareholders to enter into.—Dr. Reed seconded the resolutions, which were unanimously agreed to.—The Chairman informed the shareholders that the directors had succeeded in placing a considerable portion of the company's unissued capital, which would materially increase their working resources, and they had made certain arrangements by which he hoped they would be able to dispose of the whole of the unissued shares in a very short time.

**KANYA EXPLORATION COMPANY (LIMITED).**—The fourth ordinary general meeting of the Kanya Exploration Company (Limited) was held on Wednesday at Winchester House, Mr. L. R. C. Boyle presided. The directors' report was adopted, and the retiring directors and auditors reappointed. A resolution was passed protesting against the action of H.M. Government, and authorising the board to take such steps as they might deem necessary to protect the company's interests and preserve its rights. Sir Pearce-Edgecombe, Mr. T. Morgan Harvey, and Mr. G. F. Thomas were asked to assist the board in the matter.

## PARIS LETTER.

(FROM OUR OWN CORRESPONDENT.)

**Rand mines.**—French operations in London.—The Banca Ironstone Mines.—The French mineral industry.—A year's trade.

**SOUTH AFRICAN** mining scrip has passed through the late political crisis in a more satisfactory manner than could have been anticipated. The experience of recent years has shown that the Money Market is becoming less liable to disturbances from political causes, and the resignation of a President, or the dissolution of a Ministry, does little more than ruffle the surface for the time being. Holders of scrip have learned to be very cautious in giving way to a panic. They know that the only people to benefit from a sudden disposition to sell Rand mining scrip are the brokers, who would no doubt like to see a greater agitation in the mining market than there is at present. But investors are firmly resolved to hold on to their scrip until it is no longer profitable, and this impossible attitude rather disconcerts speculators in London, who sought to do some profitable business, in the hope that the late political events would have weakened the Paris market. A few timid holders showed some haste to dispose of their scrip, and, for a moment, this brought down the prices of shares a few points. But as soon as the horizon cleared values came back to their former level, with the result that the market is now in as strong a position as it has ever been before. Robinsons have recovered during the past few days after a slight relapse, and Ferreiras have likewise advanced. Simmer and Jack shares weakened perceptibly, and are now several points below the late quotations. Randfontein and Langlaagte are being bought up more freely. The outlook for these shares is a very satisfactory one, and the tendency of the market is in an upward direction.

One of the chief drawbacks to investors in this country is their complete dependence upon information coming through London. They possess no other means of ascertaining what is going on in the Transvaal, in Australia, or in other of the gold-producing centres of the world to which attention is at the present moment directed, and they are consequently unable to make so much out of the industry as they would wish. While only the surplus scrip is placed upon the Paris Bourse, investors do not care to speculate in gold mining shares, and content themselves with taking up scrip for the sake of the dividend. It is true that some of the Rand companies have not yet distributed much in dividends, but holders know that as a great deal of money is being spent in laying down new stamps, they cannot expect large returns for some time to come, and they are quite content, as a rule, to wait. In the meantime, there is a large body of speculators that seeks to identify itself more closely with the gold mining industry, and while several influential capitalists have representatives negotiating the purchase of properties in the Transvaal, others have been turning their attention of late to Western Australia, where they hope to secure a better footing than they have on the Rand Gold Field. It is found advisable, in order to deal more profitably in South African and other mining scrip, to operate directly in London, so that they can take advantage of information received at first hand. A few weeks ago a concern was floated in London with French capital under the title of the New Austral Company, and with a capital of 10,000,000 francs, of which only a fourth had been called up; the results had been so good as to justify the hope of realising a profit of nearly 30 per cent. The company was directed by an administrative council, and this was not found to facilitate transactions that often have to be carried out in 48 hours, consequently, the concern has now been dissolved and another is to be formed upon a more workable basis for dealing in South African shares.

This activity in gold mining investment affords a curious contrast to the depression that prevails in all branches of the home mining industries. Some time ago reference was made in these columns to the probable restarting of operations at the Banca Ironstone and Copper Mines in the Basque Pyrenees. This property, which has a superficial area of 119 square kilometres, is supposed to be particularly rich in ironstone and copper, and as the Beaucau Works, belonging to the Société des Forges et Acieries de la Marine, are situated in the neighbourhood, it was expected that a large amount of the ironstone extracted would be consumed in the district. At the same time, the mines are conveniently placed for the shipment of ore to England, which could be delivered, it is said, at below the figure paid for the Bilbao ore. In spite of these advantages it has been impossible to find the necessary capital for carrying on the work of exploitation, and it has been decided to sell the property at any cost.

The annual statistics of the native mineral industry lose much of their interest in being presented a twelvemonth after the period with which they deal. Thus, the latest figures just issued by the Government for the year 1893, while being a year of great depression, may yet have been slightly better than the past twelvemonth. According to these statistics not more than 151 collieries realised anything like a profit in 1893, and 130 sustained losses of more or less extent. The total amount of coal raised was 25,651,000 tons, as compared with 26,179,000 tons in 1892. The total consumption of coal in France was 36,379,000 tons—a figure slightly below that of the previous year. The decline in the output is set down chiefly to the strike of miners that took place in the Pas de Calais during the months of September and October, and the loss in wages to the hands is estimated at 10,600,000 francs. At the same time the rate of wages was reduced 10 centimes a day, but this is insignificant compared with the fall in the price of coal, that was as much as 1 franc 49 centimes a ton in the Nord and the Pas de Calais. This resulted in a decline of 30,000,000 francs in the value of the coal extracted. It is satisfactory to find that the number of accidents at the pits was very small, and that not a single death was caused by fire-damp. In ironstone mining the production was practically the same as in the previous year, and there was an increase in the output of argentiferous lead, manganese, antimony, and especially of zinc, which has strengthened wonderfully under the influence of the syndicate of zinc producers. The production of these last-named minerals in France during 1893 was 77,500 tons. The quantity of iron, steel, and pig iron produced was 3,475,000 tons, representing a value of 423,806,000 francs, which is a decline on the year of 33,000 tons and 3,000,000 francs respectively.

The foreign trade in iron and steel during the past year was more encouraging than could have been anticipated, but the situation generally does not offer many encouraging features. Compared with 1893, the imports of crude metal declined from 137,091 tons to 109,103 tons, and finished iron totalled 36,677 tons, as against 39,959 tons, while manufactured steel increased from 79,111 tons to 8170 tons. The exports of pig improved from 140,549 tons to 117,843 tons, finished iron from 23,238 tons to 24,243 tons, and manufactured steel from 10,671 tons to 15,529 tons. The imports of ironstone amounted to 1,638,439 tons, a figure that was slightly in excess of that of the previous year, and by far the largest quantity came from Germany, which sent more than a million tons.

The LIST for SUBSCRIPTIONS will OPEN on THURSDAY, January 31st, 1895, at Ten a.m. and CLOSE the following day at Four p.m. for LONDON, and at Twelve Noon, on SATURDAY, for the COUNTRY.

THE WEST AUSTRALIAN EXPLORING AND FINANCE CORPORATION (LIMITED) INVITE SUBSCRIPTIONS TO THE FOLLOWING ISSUE:—

# MAINLAND CONSOLS, LIMITED.

MURCHISON GOLDFIELDS, WESTERN AUSTRALIA.

*Incorporated under the Companies Acts, 1862 to 1890.*

**Capital £150,000, in 150,000 Ordinary Shares of £1 each.**

Which are now offered for PUBLIC SUBSCRIPTION at par. Payable at 2s. 6d. per share on Application, 7s. 6d. per share on allotment, 5s. per share April 2, 1895, and 5s. per share June 3, 1895. The entire cash capital required by the Company (including £25,000 working capital) having been guaranteed by the West Australian Exploring and Finance Corporation (Limited), and other responsible parties, the Directors will proceed to allotment on SATURDAY, February 2, 1895. Priority of allotment will be given to Shareholders in the West Australian Exploring and Finance Corporation (Limited), and the remaining shares will be allotted to other applicants *pro rata*.

#### DIRECTORS.

The Hon. HOWARD SPENSLEY (formerly Solicitor-General of Victoria, Australia), 4, Bolton Gardens West, South Kensington, S.W., Chairman.

Lord DOUGLAS of Hawick and Tibbers (late of Perth, Western Australia), 18, Cadogan Place, S.W.

Lieut.-Colonel EDMUND C. CRADOCK-HARTOPP, Copsewood, Walton-on-the-Hill, Epsom.

WALTER J. RUEGG, Esq. (Director, Commercial Union Assurance Company, Limited, Western Board), Stroud.

FREDERICK A. THOMPSON, Esq. (representing West Australian Exploring and Finance Corporation, Limited), 54, Old Broad Street, E.C.

#### BANKERS.

LONDON: PRESCOTT, DIMSDALE, CAVE, TUGWELL, AND CO. (Limited), 50, Cornhill, E.C.; AUSTRALIA: THE UNION BANK OF AUSTRALIA (Limited), Perth, and other branches in Western Australia.

#### BROKERS.

Messrs. HAGGARD, HALE, AND PIXLEY, 26, Austinfriars, E.C., and Stock Exchange; Messrs. HARDIE AND TURNBULL, 42, George Street, Edinburgh.

#### SOLICITORS.

Messrs. BURN AND BERRIDGE, 11, Old Broad Street, E.C.

#### CONSULTING ENGINEER IN WESTERN AUSTRALIA.

CHARLES KAUFMAN, Esq., M.E., St. George's Terrace, Perth.

#### AUDITORS.

Messrs. MONKHOUSE, GODDARD, AND CO., 29, St. Swithin's Lane, E.C.

#### SECRETARY AND OFFICES (pro. tem.)

B. O. C. ORLEBAR, Esq., 54, Old Broad Street, London, E.C.

#### PROSPECTUS.

#### MAINLAND CONSOLS, LIMITED.

This company has been formed for the purpose of acquiring and working five Gold Mining Leases, now known as the Mainland Consolidated, situate on the borders of Lake Austin, about 16 miles to the south-east of Cue, in the Murchison Goldfields, Western Australia. The property includes the five leases, known as the Mainland, Last Chance, Daly's, and the two Central Blocks, numbered respectively 113, 136, 114, 132, and 133, and comprises an area of 37 acres, or thereabouts, including one acre mill site. The leases all adjoin, and according to the report of Mr. Charles Kaufman, M.E., hereinafter referred to, extend for over 3000 feet on the line of reef.

Mr. H. B. Ainsworth, the manager of the Mainland Consolidated Gold Mines, in his report thereon submitted by the vendors to the West Australian Exploring and Finance Corporation (Limited), states that he considers this the richest property on the Murchison Goldfields, and that it will hold its own and compare favourably with any mine in Western Australia.

In regard to the Mainland Lease, Block No. 113, Mr. Ainsworth, among other things, reports: "This block comprises an area of nine acres, and is situated on the western end of the Mainland Range, and adjoins Daly's Lease, out of which some 1700 ounces of gold have been won. There has three shafts sunk to a depth respectively of 50 feet, 40 feet, and the present one now working, 30 feet, and good gold is being obtained from each. There are also two levels, one at a depth of 20 feet and the other at 50 feet, the one at 20 feet having yielded immense returns, as much as 700 ounces taken from a square foot of stone. The 50 foot level cuts the reef which shows gold freely. This level has produced as much as 27 ounces to the bucket, and the dollying was 40 ounces for about 50 lb. of stone. Altogether this lease has yielded by dolly process about 1400 ounces, and the tailings therefrom weighing 70 lb. treated, by the assayer yielded 70 ounces, or an ounce to the pound. This gold obtained the high price of £4 0s. 9d. per ounce."

"I estimate the quantity of stone in sight ready for stoping to be fully 2000 tons, which has proved by the following crushings to average five ounces to the ton. No. 1, 10 tons, 52 ounces; No. 2, 11 tons, 77 1/2 ounces. Lately we have been taking some very rich stone from the 30 feet shaft, and estimated to yield 1000 ounces to the ton, thus proving the continuance of the reef and its rich deposits. The ironstone is another feature of the richness of this property, extraordinary results having been obtained from the stone, which seems to extend to considerable thickness on the footwall, the slate also on the footwall in some cases assaying 10 ounces to the ton."

"The reef, so far as been worked, shows a uniform thickness of about two feet, nearly vertical, and trending N.E. by S.W., proving it to be a true fissure lode. The lode formation averages a thickness of four feet, and is easily worked, no explosives being required, as the country consists of decomposed diorite for the hanging wall, and clay, slate, and iron footwall. Water level is about 48 feet, and the gold obtained from below water level in Daly's lease, the adjoining claim, is far richer and coarser in nature than any obtained above, proving that the reef will carry superior gold below the water. Wood for furnaces is very plentiful."

#### MAINLAND CONSOLS, LIMITED.

In regard to the Last Chance Lease, Block No. 130, Mr. Ainsworth, amongst other things, reports: "This lease comprises 6 acres. There are five shafts on this lease, the deepest being 55 feet, where the reef was recently struck, showing splendid gold. There are, at present, three levels on this property and the fourth in course of opening, the total length driven in the three levels being respectively 200 feet. At the north end the reef shows 8 feet of solid stone in this level, and known as No. 1. No. 2 is driven for a distance of 120 feet, in which three shoots of gold were cut. No. 3 is at the 50 foot level and has proved extremely rich, being driven a distance of 130 feet. As much as 1000 ounces have been won from this level while cutting through one shoot of gold. This gives an underly of backs ready for stoping of some 120 feet, estimated to contain 7000 tons of stone, which I estimate will yield a return of 5 ounces to the ton, and in another month this will be increased to between 8000 and 9000 tons, or a matter of 45,000 ounces ready for dollying."

The results of this block have been phenomenal, as the following yields will show, No. 1—one bucket of stone yielded 127 ounces, No. 2—one bucket of stone yielded 188 ounces, No. 3—two buckets of stone yielded 227 ounces, No. 4—one bucket of stone yielded 126 ounces, No. 5—one bucket of stone yielded 27 ounces. No. 6—two buckets of stone yielded 434 ounces. No. 7—8 lbs. of stone yielded 24 ounces. Crushings from this lease are as follows: No. 1—8 tons, 54 ounces. No. 2—7 tons, 266 ounces. No. 3—17 tons, 132 ounces. Altogether the quantity of stone dollyed from this block has realised the handsome yield of 3560 ounces.

"There is in connection with these properties a three-head, 4½ cwt. stamp battery, driven by a Robey 4 h.p. portable engine, all new and in thorough working order, and battery house built of iron. This battery stands on an area of 1 acre, held as a machine area, under registration. The capabilities of the battery are 20 tons per week."

#### MAINLAND CONSOLS, LIMITED.

In regard to the Daly Lease, Block No. 114, and the two Central Leases, Blocks No. 132 and 133, Mr. Charles Kaufman, M.E. (in a report hereinafter referred to), states that the Daly property covers an area of 9 acres, and is now being worked on a branch of the main lode, which contains rich chutes of ore, the shaft on the incline of the vein being 70 feet deep. The Central Blocks (lying between Daly's and the Last Chance Leases) cover an area of 12 acres, the main shaft being down 120 feet and an incline 70 feet. The width of the reef is here 2 feet, gold being visible to the eye in several places. At the bottom of the Last Chance Mine the lode is dipping in the direction of the Central Blocks.

Mr. H. Lancaster Hobbs, M.E., who made an extensive and independent examination of the Murchison district for other parties, in a report for the West Australian Exploring and Finance Corporation (Limited), amongst other things, states in regard to the Last Chance Lease: "The lode in this property varies much in size, and I averaged it at 2½ feet to 3 feet in width. The rich shoot of ore from which the owners have extracted so much gold runs diagonally, striking S.W., and carries very coarse gold. This was the richest piece of ground I saw on the Murchison Fields. There can be no doubt that this reef extends into the Daly Lease, they having, also, rich chutes of ore similar to the Last Chance, the country rock and general appearances being identical. The reef continues into the Mainland Lease, where I estimate its width to be 3 feet. The reef running from the Last Chance to the Mainland (the entire extent of the property) is a good strong reef with a well-marked outcrop, prospecting well its whole length, and from its general appearance and the nature of the country rock in which it is found, I should judge, would prove to make in depth. Not taking into consideration the phenomenally rich pay chute that has been met with, I calculated the main body of the reef would value 2 ounces of gold per ton. The cost of working in the Mainland District would be from 1 ounce to 2½ dwt. per ton of ore, so that a large margin for profit would accrue from working this reef."

The Hon. William Clarke, J.P., formerly Minister of Justice of New South Wales, in a letter calling attention to this property, wrote: "I have visited the Yilgarn (Coolgardie) and Murchison Goldfields of Western Australia, and have been almost to every mine in those localities. There is no doubt that these Goldfields will be permanent, and that there are wonderful surprises in store in the future. In my estimation, and in the opinion of the best mining experts on the Murchison, this property (Mainland Consolidated) is one of the best, if not the best, on the goldfields. Lord Douglas of Hawick and Tibbers (late of Perth, Western Australia), in a recent letter, writes: 'In Western Australia there is a general consensus of opinion that the Mainland Consolidated is one of the best properties on the entire Goldfields now to the front.'

#### MAINLAND CONSOLS, LIMITED.

Mr. Charles Kaufman, M.E., who was specially instructed to examine and report on all the above Leases for the West Australian Exploring and Finance Corporation (Limited), in a very lengthy cable report, dated 9th January, 1895, in describing the extent of the developments on the several properties, amongst other things, states: "The vein (Last Chance Lease) contains many chutes and chimneys of ore, varying in width from 10 inches to 4 feet. A rich chute of ore in the face of the drift at the lowest level averages about 1000 ounces of gold per ton. The ore from the workings (Mainland Lease) has produced £9600, notwithstanding the imperfect means of working. Plenty of water to be obtained sinking." He concludes as follows: "Rich chutes of ore and chimneys of extraordinary richness have not been taken into consideration in an average sample (Mainland Consolidated). At a very low estimate, Leases will average between 2 and 3 ounces of gold per ton. I consider it a most valuable property, with a great future before it."

Having regard to the valuable leases to be acquired by this company, their great extent on the line of reef, the small capital of the company in proportion to the value of the property to be taken over, and the general consensus of opinion in Western Australia (as set forth in the letter of Lord Douglas) that this is one of the best properties on the Goldfields, the directors feel justified in expressing their confidence that handsome dividends will accrue to the shareholders as soon as the property is equipped with an appropriate plant of milling and crushing machinery, which it is their intention to erect forthwith.

The purchase price of the property has been fixed by the West Australian Exploring and Finance Corporation (Limited), who are the vendors and promoters of the company, at £150,000, payable as to £75,000 in cash, and as to £50,000 in cash, shares, or partly in cash and partly in shares. £25,000 will be provided for working capital. The vendors have agreed to pay all the expenses of forming and establishing the company up to allotment other than the legal expenses of and incidental to the registration of the company and the conveyance of its property.

The only contract entered into by the company is an agreement dated the 28th day of January, 1895, and made between the West Australian Exploring and Finance Corporation (Limited), of the one part, and Charles Lloyd, as trustee for this company, of the other part, providing for the purchase of the above-mentioned leases. Agreements have been entered into with third parties, to none of which the company is a party, and applicants for shares will be deemed to have notice of the contents of these, and to have waived their right (if any) to particulars thereof, whether under Section 38 of the Companies Act, 1867, or otherwise. The above-mentioned agreement, original reports, and the memorandum and articles of association, can be inspected at the offices of the company's solicitors.

#### MAINLAND CONSOLS, LIMITED.

Application for shares should be made on the form enclosed in the prospectus, and sent with the required deposit to the bankers of the company. If the number of shares applied for by any applicant be not allotted, the surplus of the amount paid on deposit will be appropriated towards the amount due on allotment, and, where no allotment is made, the deposit will be returned in full. Prospectuses and application forms may be obtained at the offices of the company, and also of the bankers and brokers.

London, 28th January, 1895.

Written applications for shares will be received if made in the following form:

To the Directors of the Mainland Consols (Limited), Gentlemen—Having paid to your bankers, Messrs. Prescott, Dimsdale, Cave, Tugwell, and Co. (Limited), 50, Cornhill, London, E.C., to the account of the Mainland Consols (Limited) the sum of £\_\_\_\_\_, being a deposit of 2s. 6d. per share on Ordinary Shares of £1 each in the above-named company, I request you to allot me that number of shares, and I agree to accept and pay for the same or any less number, upon the terms of the prospectus dated the \_\_\_\_ day of January, 1895, subject to the memorandum and articles of association of the company, and to waive any objection on the ground of non-compliance in the said prospectus with Section 38 of the Companies Act, 1867, or otherwise.

Ordinary signature .....  
Name (in full) .....  
Address (in full) .....  
Profession or occupation .....  
Date .....  
1895

#### MAINLAND CONSOLS, LIMITED.

##### EXTRACTS FROM THE AUSTRALIAN PRESS.

"I am now camped on the Last Chance (Mainland Consolidated). It is, without doubt, the best opened up property I have yet seen. Mr. Ainsworth, the manager, personally erected as near a prospecting plant as one could wish for. It is a stamper mill equal to about 25 tons per week—and such tons as they get out! 12 ounces stone from one shaft, 5 ounces stone from another, and so on. When I visited the mine there were 350 ounces of coarse gold dollyed from a few buckets, and a heap of stuff at grass in which pennyweight 'specks' of fine gold in abundance, and 100 ounces specimens could be picked out. The reef is big and strong, with three shoots of gold. They do not chase down the metal as in most shows on the field, but deliberately sink and drive levels, contenting themselves with taking the hundreds of ounces that come in the way of the drive. Three such levels have been driven, and if one can estimate the unknown quantity to be stoped out by what has been taken out, the mine must be worth at least £100,000 in actual metal within grasp. There are 140 feet to 150 feet of backs, with shoots giving 300 ounces to a few buckets, and the rest going, say, 12 ounces, which is rather good in a reef with a 2 foot average at the lowest, although in places she makes very big. It is a remarkable good property. The blocks have so far yielded 4000 ounces by dolly and mill. It is the best thing for remarkably rich crushing stone I have yet seen."—Special Correspondent, *Australian Mining Standard*, May 28, 1894.

The Special Correspondent of the *Melbourne Age* writes from One in regard to the Mainland:—"Only recently a crushing of 6 tons yielded 268 ounces, but even that splendid result, achieved from stampers paled before a day's work before my visit, and I actually handled the gold, and saw it weighed. There was no room for incredulity, as I saw on descending the shaft stone of equal richness to any previously found showing freely. The reef has been worked at three levels. It was about 2 feet thick, well defined, and dipping slightly to the westward. The country was good, easy to work, the stone yielding up the gold freely, and without the necessity of resorting to burning, chlorination, or any other expensive process. The sight of a speck of gold tempted me to use a pick, but as the stone was solid, a hammer and gad were brought into requisition. After a few strokes, a piece of the reef was detached about the size of half a brick. It was almost all pure gold. Two other chunks were knocked out, and we then climbed the ladders carrying up the best way we could the three pieces, which only half filled a bucket. I had not time to see it dollyed, but we estimated that in three pieces there were at least 120 ounces; and, so far as I could ascertain, there was any quantity of similar stone.

#### MAINLAND CONSOLS, LIMITED.

"Mr. Charles Chapple, the present representative of the Day Dawn Mining Association, showed Sir John Forrest round, and accompanied him as far as Mount Magnet, 60 miles southward, stopping en route to inspect the golden storehouses of the Mainland. Rich as the Mainland claims appeared to be on the occasion of my first visit, three weeks before, the display I then saw was quite thrown into the shade. Mr. Ainsworth (the manager) produced 356 ounces of rough dolly gold, which he nonchalantly mentioned was obtained from less than two bucketfuls of stone, and some of the best specimens were kept back. The gold is of splendid quality, realising £4 per ounce."—Special Correspondent of *The Age*, June 22, 1894.

"Passing on the Mainland, we find everything very promising. From Daly's Lease, of the Mainland Consolidated, a magnificent stone is being obtained. Only a week ago we mentioned that over 800 ounces had been taken out in a few hours, and without exaggeration it may be said that the claim, and several more in the same locality, will fully hold their own against any others in Western Australia for richness and permanence—the latest sensations from Coolgardie thrown in. On Monday afternoon the three-head battery was set to work on a small parcel of stone—well, perhaps that is a misnomer, because in less than half-an-hour a solid mass of gold, the fragments of quartz being simply battered out of it, was taken out of the stamper box, weight 112 ounces. No quicksilver was used in the boxes, the stone being too thickly studded with gold for that. It was simply dollying by steam. The Murchison Gold Fields are of great richness, and permanent beyond doubt."—*Murchison Times*.

"Day Dawn, Murchison, W.A., 31st December, 1894.—The Mainland group of mines on this gold field, which includes the five blocks known as the Mainland Reef, the Last Chance, Daly's, and the two Central Blocks, comprises a total acreage of 38 acres, has been secured by the local agents of the West Australian Exploring and Finance Corporation, of London. This is regarded here as the most important amalgamation of mining interests yet effected on the gold field. In the bottom of the main shaft of the Last Chance a streak of golden stones has been struck from 15 inches to 20 inches wide, the yield from a trial crushing showing a return of 1000 ounces to the ton. The reef is so easily worked that a single miner could take out several tons of quartz of this rich description in the course of a day. The possibilities of this group are considered to be immense under a common management and systematic scheme of working."—*Dalziel Cable*, in *Financial Times*, January 2nd, 1895.

## THE ROYAL SCHOOL OF MINES.

## THE FUNCTION OF THE YEAR

THE 22nd annual dinner of the old students of the Royal School of Mines took place on Friday in last week at the Criterion Restaurant, and was again made the occasion of the gathering together of an assemblage adequately representative of the industry in all its branches—from the exponents of those pure sciences on which its normal and correct development ultimately depends to the financiers of the City whose work lies rather in the promotion and organisation of particular undertakings. Of the features which would mark the event as a successful one there was none wanting, but a point of difference separating it from the majority of preceding dinners was the greater inclination of the speaker towards a serious estimate of present day industrial questions, and a somewhat smaller demand upon the humorous faculty in the guests. Indeed, the occasions for laughter were fewer, and given for the most part unconsciously—as, by the confidently delivered and clearly marked error of one of the attendants in an incorrect coupling of speaker and toast. A large attendance closely united towards a common object; a well-considered menu; an abundance of pithy and pleasant specifying; and a not unduly-delayed termination—these are the essential conditions of a satisfactory official dinner, and they were all attained to the full.

Mr. Graves received hearty congratulations from all parts of the room as to the manner in which the proceedings were passing off, and the compliments were wholly deserved, for in matters of arrangement the honorary secretary had worked indefatigably, and the result was in no small measure attributable to his forethought and care. A well-advised change in the disposition of the tables, though a small thing in itself, was plainly conducive to comfort and order, bringing, as it did, even the more remotely-placed guests within easy hearing distance of the President's chair, which may be taken as the oratorical centre of the room. A small but able orchestra contributed selections of music during the evening, which were wide enough to meet all taste, and included a *Lied ohne Worte*, by Mendelssohn; a pianoforte quartette, by Zavertal, of the Royal Artillery; and a Russian mazurka by a French writer of Slavophil sympathies, harmonising with the original sentiment, it may be conceived, rather in the richness of its melody than in the semi-deliberation of its movement. The following is a list of the performers:—First violin, Mr. S. Oakley Parrott; second violin, Mr. T. Oppeler; viola, Mr. B. H. Madden; violoncello, Mr. A. Ball; pianoforte, Mr. A. Jarratt.

Mr. A. Jarrett.  
Mr. W. H. Greenwood, A.R.S.M., presided over the company, and was supported by Professor W. A. Tilden, F.R.S.; Mr. H. A. Wiggin, J.P.; Professor Judd, F.R.S.; Mr. Jeremiah Head, M.I.C.E.; General Lloyd, C.B.; Professor Roberts-Austen, C.B., F.R.S.; Professor Riicker, F.R.S.; Mr. W. Gowland, late of the Japanese Mint; Professor Boys, F.R.S.; and Professor Huntingdon, President of the Institution of Mining and Metallurgy. Among the others present were:—Messrs. H. A. Allen; H. Bauerman, A.R.S.M.; F. W. Bayley, A.R.S.M.; E. Best; B. H. Brough, A.R.S.M., Secretary of the Iron and Steel Institute; G. N. Brown, A.R.C.S.; F. A. Calvert; A. G. Charlton, A.R.S.M.; A. C. Claudet, A.R.S.M.; J. H. Collins; H. F. Collins, A.R.S.M.; R. E. Commane; S. H. Cox, A.R.S.M.; G. Crampton; A. G. Crawford; G. Dahl; F. Fowler Ellis, A.R.S.M.; A.R.C.S.; C. E. Ertz; Professor J. B. Farmer, M.A., F.L.S.; F. Fladgate, Registrar; Jas. Forbes; J. Forbes, jun.; H. Fraser; J. Garland; H. G. Graves, A.R.S.M.; M. H. Gray, A.R.S.M.; R. A. Gregory; C. V. Haines; F. W. Harbord, A.R.S.M.; F. E. Harman; H. Hatfield, Chief Examiner, Patent Office; T. Healey, Official Examiner, Science and Art Department; G. J. Hill; H. A. Hinton, A.R.S.M.; G. T. Holloway, A.R.C.S.; Professor G. B. Howes; H. W. Hughes, A.R.S.M.; T. V. Hughes, A.R.S.M.; E. Jackson, A.R.S.M.; E. W. Janson; H. C. Jenkins, A.R.S.M.; B. Kitto; W. I. Last; J. G. Lawn, A.R.S.M.; A. Louis; H. F. Marriott, A.R.S.M.; A. E. Marston, A.R.S.M.; B. McNeill, A.R.S.M.; W. McNeill, A.R.S.M.; W. H. Merritt, A.R.S.M.; R. J. Middleton; J. C. Moulden, A.R.S.M.; E. W. Newton; H. F. Olds; Professor F. J. M. Page, A.R.S.M.; F. W. Park, A.R.S.M.; F. B. Parkinson, A.R.S.M.; A. E. Payne, A.R.S.M.; R. E. Peake; J. S. Pearce; R. B. Pollitt; R. A. Roberts; J. W. Rodger, A.R.C.S.; C. B. Sauer; W. E. Simpson; C. H. Sidebottom, A.R.S.M.; E. A. Smith, A.R.S.M.; A. Stanfield, A.R.S.M.; A. Sutton, A.R.S.M.; W. Tate; H. S. Theron; W. Thomas; C. Tooke; E. W. Vredenburgh, A.R.S.M.; W. Watson, A.R.C.S.; P. B. Waugh, A.R.S.M.; M. F. Woodward, A.R.C.S.; E. H. Wyatt, A.R.C.S.; Professor W. P. Wynne, D.Sc., A.R.C.S.

Wynne, D.Sc., A.R.C.S.  
The CHAIRMAN proposed the first toast of the evening—that of "The Queen"—in the following words:—The first toast I have to propose is that of "The Queen," and I am sure you will all echo the sentiment I give—"Long live the Queen; God save her; may she reign long, supported by the affections of a happy, contented, and prosperous people." (Cheers.)

prosperous people." (Cheers.) The toast was honoured with peculiar cordiality, the orchestra rendering two verses of the National Anthem.

The CHAIRMAN then submitted the toast of the evening. He said—Gentlemen, in rising to propose the toast of the evening—"Success to the Mining and Metallurgical Industries," I am reminded of an anecdote which I heard a short time ago upon a similarly festive occasion, where one of the guests is reported to have enquired of his neighbour as to the identity of the distinguished-looking gentleman to the right of the President; and, being answered, proffered the same question respecting the other guests who were present. Having received satisfactory replies, he proceeded—"But who are the gentlemen with pale faces and an anxious expression distributed about the room?" The reply you may guess—"Those are the gentlemen who have yet got to speak." (Laughter.) I do not know what the peculiar aspect of my complexion may be at this moment; but I am certainly fortified on the present occasion by the remembrance that I have never yet read a novel in which a metallurgist was described as a villain—(laughter)—although, I think, the other professions are apt to be treated by the novelist in very hard measure. It is not unusual to see clergymen described as hypocrites, lawyers accused of betraying the interests of their clients, doctors arraigned for poisoning their patients, and mining men charged with salting their mines and samples for the purpose of defrauding a too-confiding public. Since, however, I do not remember to have read a description of a wicked metallurgist, I can only conclude that the genus is extinct. (Laughter.) In proposing this toast, I believe custom requires that there should be some reference to the advance made in theoretical and applied science during the past year. This I propose to do very briefly, for if I were asked to give a terse description of last year's work I should characterise it as a year of stagnation. Practically, I think we have done 'nothing of great moment, notwithstanding that we are the richer by the continued experiments of Professor Dewar, conducted with all the resources of the Royal Institution, into the liquefaction of air, and the effects of exceedingly low temperature—200° Centigrade—upon other gases. Farther, we have had the announcement of what may be one of the most remarkable discoveries of the age—I refer to the reported separation of a distinctly new element in the atmosphere by Lord Rayleigh and Professor Ramsay. (Applause.) Whether it is a new element or not, I suppose we shall know in the course of a week or two. (Applause.) Passing from pure science to science industrially applied, we cannot mark any revolutionary development during the past year in the metallurgy of either iron and steel, copper, lead, tin, spelter, or nickel. We have, however, seen a considerable development of the MacArthur-Forrest cyanide process for the extraction of metallic gold, more especially in its application to the treatment of battery tailings and slimes. Electricity also has been considerably developed during the year in the transmission of power in mines and under the methods and processes of the metallurgist, so that we find electrically-produced copper, spelter, and nickel coming forward as regular articles of commerce, much more than in previous years. Then the Austin process for the concentration of

pyrites has been adopted by the Cape Copper Company at the Tilt Cove Mines, Newfoundland, with the object of producing a matte of one-third the weight of the original stuff. In the iron industries, I suppose, the tendency has been to increase the capacity of the blast furnaces by the application of higher blast pressures. The decadence in the malleable iron trade continues, and doubtless, will continue, but we are glad to note that this falling-off in malleable iron is more than compensated by the increased working of open-hearth steel, the Bessemer process having remained stationary during the same period. The use of open-hearth furnaces of a larger type is now general. In connection with the iron industry also, I ought to refer to the metal mixer, which has been developed during the year, when, I understand, that some 350,000 tons of metal have been treated by this process in Great Britain alone. The Harvey process again, for the treatment of the surface of armour plates, has received a considerable impetus, largely due to orders placed with local firms by our Admiralty for a considerable tonnage of plates to be treated by this method. It is noticeable, further, that puddlers' furnace slag formerly a waste product carried out in the slag heaps is even being dug out, and is yearly becoming of more value for the production of a phosphoric pig to be treated by the basic process, the latter having received some impetus owing to the expiration of the basic patents. Then one ought to notice that long-continued race which appears to be in progress for increasing the output at the steel-work. It has now reached that point where, across the water, Carnegie's works are producing 8000 tons of steel rails in a single week. This compares favourably with the 4000 tons which 10 years ago were thought a considerable feat. It is further noticeable that this large tonnage of rails is being turned out for the most part on account of the use of automatic machinery, manual labour forming a very small proportion of the power concerned. The result is that whilst 20 years ago this class of metal was sold at some £12 or £14 a ton, and some years later it was considered that £8 a ton was a fairly profitable price, to-day rails may be bought at £4 a ton, and ships' plates under £5 a ton, a fair margin of profit being secured in both cases, notwithstanding the fact that 1894 has not seen the introduction of any innovation possessing a patent like that forming the basis of the Bessemer and Siemens processes. In fact, the leading characteristic of the year will remain to be chronicled as one of extreme commercial depression—not that the volume of our trade has materially decreased; but that the margin of profit has been reduced to a minimum, and in a good many instances to a negative quantity. This is largely the result of increasing foreign competition, and the cutting-down of the prices obtained by manufacturer, merchants, and dealers. No doubt higher wages and shorter hours of labour have contributed to the same result—(hear, hear)—in reducing the manufacturers' profits, but, if so, that is not altogether a loss. It simply means that the profits are being divided more equally between the manufacturer and artisan—(hear, hear)—and that the artisan is receiving a larger share in the industrial partnership. So long as it is only a division of profits it has my sympathy, but there is a danger that, if the artisan gets too much, we may at length reach a limit where we can longer maintain our foreign competition. During the year, as I have mentioned, the prices of copper, zinc, spelter, tin, lead, iron and steel have constantly fallen, some of them considerably, and we shall be told that during last year iron and steel were as low as they could possibly get; tin and nickel have fallen considerably, while the depression in silver has attained a point hitherto unknown, and this forms a factor to be seriously considered in estimating the purchasing power of silver-producing, and silver-using countries all over the world. This will not have been an unmixed evil if it lead our miners to undertake searches for new deposits of gold, as would appear to have been the case by the large number of public companies which have been placed on the market during the last four or five months—(laughter)—notably in South Africa and West Australia. (Applause.) Some gentlemen smile. These companies will not all turn up trumps. No doubt some will be good and some bad. The year 1894, as I have said, has been a year of great depression, and has ever been characterised as the worst year ever experienced by commercial men. Still, all bad years are the worst. Some commentators have gone headlong into evil, and see in the present times only a permanent decadence of our trade. That I consider a perfectly unnecessary view to take. These periods of depression form a necessary and essential factor in our commercial and industrial cycles. In examining into the causes of this and other depressions, ignoring for the moment the generally-recognised conditions of over-speculation and over-production, there is ever to be remembered, I think, that the miner, the metallurgist, and the engineer are always the pioneers of civilisation, and sometimes their progress is so rapid that the world is unable for the moment to keep pace with it. Thus a period of depression ensues. During the past 20 years our progress has been so rapid, both in the methods of production and distribution, and in the extension of railway, telegraphic, and telephonic systems, that industry and commerce have not yet become able to adapt themselves to the altered conditions. No doubt, the same causes have contributed towards the unsettlement of our labour market during the past and previous years; but this I look upon as an almost essential concomitant of our social régime, for it is, I think, generally accepted that invention has a tendency to raise wages, as it undoubtedly has to shorten the hours of labour. The consideration of a very simple invention or innovation suffices to illustrate this. The invention of the lucifer match occurred, I think, about 1833. Tinder boxes were thus superseded, and it has been calculated that the saving in time effected by that simple invention is equivalent, at the present day, to 78 hours, or nearly 10 working days of each adult member of our population, and the capitalisation of that vast saving amounts to no less than upwards of £20,000,000. If this small innovation has effected so large a result, what must be the result of the much greater inventions which have been produced—such as steel rails, for instance? The introduction of improvements in steam navigation and in machinery on board ship has had this result—that one seaman is now as efficient in navigation as four men were in 1860. Again, the opening of the Suez Canal has made it possible for two ships to do the work of three. In the social and political adjustments which naturally follow upon these and still greater improvements, a considerable amount of confusion must necessarily arise; but this, so to speak, is the growing pain, not desirable in itself, but yet the sign of a healthy growth and vigorous development in the body politic. I take it, then, that there is nothing positively disheartening in our present experiences, whilst I think there are ampler indications of returning confidence and a happy revival in our industries. (Applause.) For instance, we have had concluded the great Baring liquidation in the City; we have had during the year a partial revision of the McKinley tariff; while large Admiralty orders are expected in the spring. There is no doubt a revival in ship building and railway construction both at home and abroad; China must undoubtedly be opened up to commerce and civilisation at the conclusion of the present fiasco of a war; and as to the mining boom, I am glad to note the recovery of Australia after a long period of depression. (Applause.) These are all signs indicative of the possibility of an early revival in our trade. In forecasting this revival, however, we should remember that England no longer enjoys those monopolies in coal and iron which formerly gave her such a preponderating influence and proud position among the nations of the earth, whilst by an equal education the foreign director and labourer are able to compete on equal terms with our own. Thus it follows that those interested in our industries can best and most profitably turn their attention in the same way to the education of our people in the best manner possible, both commercially and scientifically. In doing that we shall only be following in the path of the foreigner, who is doing all he can to educate those who have to take any part—either manual or mental—in developing and maintaining the industries of his country. (Hear, hear.) We look to the Royal School of Mines—(applause)—which is the leading and by far the most important technical institution in the country, to send forth men who shall not only be charged with large stores of scientific and technical knowledge, but who shall also have acquired in some way or other a large share of those equally necessary and important qualities—common sense and business aptitude—(applause)—which, taken in conjunction with scientific knowledge, will enable a man, no matter under what adverse and varying conditions, to provide

means to an end in whatever part of the world he may be found. There are undoubtedly few more travelled men than the Associates of the School of Mines. In conclusion, I would only say that we believe that the courses of the Royal College of Science are calculated to produce scientists who will continue to take the same leading part in devising new methods, and in developing old ones and adapting them to the altered conditions of the time as they have done in the past, and who, by their energy, skill, and technical knowledge will continue to maintain the prestige of our industries and the School which we all love. (Applause.) I have to couple with this toast the name of our esteemed and valued friend Professor Roberts-Austen—(applause)—who is not only a Professor at the Royal School of Mines, but who is one of ourselves, an Associate of the School, and notable for his investigations into scientific metallurgy, and for his researches into the constitution of metallic alloys. Gentlemen, I give you that toast of "Success to the Mining and Metallurgical Industries."

Professor ROBERTS-AUSTEN, in reply, said: Before I commence my acknowledgment of the comprehensive toast which has just been honoured, let me say how sorry I am, and how sorry I am sure you will be that my colleague, Professor Clement Le Neve Foster, is unable to be present with us to-night, having an engagement of long standing in connection with the mining industries. He is, in fact, lecturing at Nottingham, and is the guest of an old Associate of the School of Mines, and, as the engagement is of very long standing, I am sure you will quite understand that he cannot be with us, however much he would like to be. Our Chairman has just told us that there is no such individual as a wicked metallurgist in existence. (Laughter.) I confess that during the earlier portions of his speech I had grave doubt, for our Chairman has written a text-book on metallurgy, and I have written a text-book on metallurgy, and to this moment I do not know which my students prefer, although I know they use his. He has said very justly that the commercial depression of this country has assumed very grave proportions—very grave, indeed, when the duration of this depression has formed an important paragraph in the Queen's Speech at the opening of the last Parliament. Still, I am sure you do not wish me to continue in that strain, and, therefore, the sooner I pass on from any suggestion of despondency the better. We are told that the age of steam is passing away before the age of electricity, and that, of course, is quite true of the metallurgical industries as of all others; but I see nothing to regret in that. If we consult our revered Professor of Physics a little more we are not likely to love our Professor of Chemistry any the less. And have not Englishmen stood in the foremost ranks of electricians, and played far more than their own part in those great works which form such a great source of power in industrial operations? From the point of view of the student of the School of Mines there is one very reassuring feature about the present time. In spite of the depression, we do not find that students of the School of Mines fail to find employment. If they do not become absorbed in industry quite as rapidly as hitherto, there is really very little difference; and any man who is worth his salt, can, according to my experience, gain his living very easily. You know we Englishmen do not know when we are beaten; and, more than that, we will not consent to recognise the signs of approaching disaster. As regards the particular industries in which Great Britain has always held her own—the iron and steel industries—is there any other nation that in less than a year could have built the *Magnificent* and the *Majestic*? Is there any other nation that is doing research work likely to produce such a complete knowledge as we possess as to the materials of which armour plate and projectiles should be made? In regard to the relations between capital and labour, we are beginning to learn that what we formerly called charity is no more than justice, while the workpeople, as our Chairman has said, are beginning to take their proper share in the results of their labour. The capitalists, on the other hand, are beginning to be content with smaller profits, are endeavouring to apply sound scientific principles, and so are attaining the utmost economy in their works. I am far from taking a dismal view of the future, and I believe that, as in the past, the students of the School of Mines will more than hold their own in connection with the mining and metallurgical industries. (Applause.) I thank you, gentlemen, for the manner in which you have received this toast, and for the honour you have done me personally by coupling my name with it. (Applause.)

done me personally by coupling my name with it. (Applause.)

Mr. J. H. COLLINS rose to submit the toast of "The Professors." He said: Gentlemen, the duty which falls to me to-night is a very pleasant one. Already we have drunk the health of one of the professors, and directly I shall ask you to drink with equal cordiality his health again, together with that of his colleagues. Reference has been made to the absence of my old friend and colleague, Dr. Le Neve Foster. I can only join in the regret which has been expressed at his absence, but I am not altogether sorry, because I can say in his absence what I could not venture to utter in his presence. We all recognise the special qualities which have made him so valuable here as a fellow-worker. His great industry, his extreme accuracy, his sound judgment, and his very clear method of expression—all these things have made us value his teaching, and we all look upon him as one of the most creditable representatives of mining and metallurgy at present in the Royal School of Mines. Of the teaching powers of Professor Judd—whom I am glad to see here—(applause)—and of those of Professor Roberts-Austen—(applause)—I am only able to speak vicariously. I have long had the privilege of their personal acquaintance, but I know of their teaching only from what I see in my son, who is beside me, after 12 years' work in Mexico and Spain. Gentlemen, I am grateful for what the Professors have done for him; and if they only speak as highly of him as he speaks of them, none of us will have any reason to complain. It is my misfortune that I have no intimate acquaintance with the other Professors. I have seen the beautiful, the delicate, the ingenious experiments of Professor Boys on several occasions—(applause)—and your ready response tells me that I was not wrong in concluding that there was something remarkable in these performances. We are all proud, as we have every reason to be, of the Professors of the Royal School of Mines. (Hear, hear.) Go where we will in any part of the world, we find that their names are known and honored, and, as to the School itself, it has one advantage, I think, over nearly all the other institutions dominated by the Science Department, in that its teaching and examination go hand in hand, and are not divorced. That is according to my view—and I have had some experience—the only way in which you can avoid the evils of cramming. Such is the case with the Royal School of Mines, and long may it remain so. I have pleasure in proposing the toast of the "Professors of the Royal School of Mines," coupled with the name of Professor Judd. (Applause.)

(Applause.)  
Professor JUDD, who was received with loud applause, speaking in acknowledgment of the toast, said:—I confess that I should have a much more phlegmatic temperament than I am conscious of possessing, if I could have listened unmoved to the kind, if too flattering, words in which this toast has been commended to you, and, on behalf of my colleagues, both present and absent, and the whole staff of the School, which, I believe, is included in this toast, I thank you for the manner in which you have received it. I must confess that the glow of pride and pleasure with which I listened to Mr. Collins' words was slightly abashed by the cold thrill which passed through me, when your hon. secretary—to whom I bow in all things, and who has managed everything so well—(applause)—referred to me as the Senior Professor. I could not help thinking of 20 happy years of teaching, and a feeling came over me that there was sadness in reaching that term. I must, however, remind our honorary secretary that there is a slight inaccuracy here, seeing that we have a Professor—an honorary Professor it is true—our Dean—(applause)—who is so much my senior that he would smile at my blushes. He can speak of 40 years, but I can assure you that he only needs a foeman worthy of his steel, to show that he is still awaiting the opportunity to look out for the weak place in the armour of his adversary, and to deal his swishing blows. I only regret that he is not here to relieve me of the pleasant duty of replying to you. One of my colleagues—our junior colleague—Dr. Tilden whom we are so glad to welcome here to-night—has assured me that a man is only as old

as he feels. (Laughter.) He also told me—I mention this in strictest confidence—that at times he only feels about 25 while at others he feels 150 at least. (Laughter.) Well, I can assure you that our Senior Professor never feels quite 150, while at the present moment he feels exactly 23—(laughter)—for that was the moment at which he was called forth to go out into the great sphere of the world. I cannot, myself, forget that period in my own career. I remember how Ramsay and Smyth, and dear old Dr. Hoffman took me by the hand, and bade me farewell on leaving the School. I recollect the kindness of the old Registrar, Mr. Trenham Reeks, and I shall never forget the day of my arrival at Sheffield, the place where I was to act as an analytical chemist. (Laughter.) I was met by a body of old School of Mines men, who greeted me most heartily, and we formed a chemical society. I often have now to part with old students, but I always speak to them with the greatest confidence of the kindness they are sure to receive if they ever meet old School of Mines men, no matter in what part of the world. (Applause.) I found in conversation the other day that by a pure coincidence three of your present Professors were in the School at the same time—your Senior Professor, your Junior Professor, and Professor Roberts-Austen. We must have been working at the benches at the same time, and although I never remember meeting my friend Professor Tilden—or our friendship would have been antedated by many years—yet Professor Roberts-Austen and myself were the closest of friends. There is a bond of sympathy between us Professors, and you who call yourselves mining engineers, I recollect that I was once walking through the streets of Harrow with Matthew Arnold, when one of the schoolboys came up and addressed him as Professor Arnold. With the curious deprecating way which was his, he put up his hand, and said—"Oh, call me not by that name. I wish not to share the honour with every man who makes pills, and performs conjuring tricks," and you must be all aware that the title of Professor is not always a distinction to be coveted. In the same way, I think, people in the world are so undiscriminating as not to recognise the difference between the gentleman who carries on his operations in his neighbours' pockets, and those who are engaged in the more legitimate industry within the bowels of the earth. I have spoken of the sadness of parting with many of the old students, but there are the pleasures of meeting them again, and only recently two men bracketed together some 15 years ago in the examination list, met in my rooms, never having been together in the interval. But I must not dwell upon these reminiscences. I am sure that all my colleagues of the professorial and teaching staff would tell you of the vast amount of useful work that is being carried on—work of a purely scientific character. I have thought, moreover, that a word or two as to the practical work being done might not be amiss. Within the past year our thoughts have been turned a good deal towards Coolgardie, and many have seen the valuable map of the admirable Miners' Guide, so helpful in many respects, which has been published by my old friend, Mr. Harry Woodward. Mr. Sawyer, moreover, in spite of difficulties, has worked in Mashonaland and Matabeleland. Mr. Rickard seems to be constantly passing from the Western States of America to the Australian colonies. (Hear, hear)—and Mr. Charlton has published a most valuable paper on the washing of ores and ore deposits, while I have no doubt that there are many other pieces of valuable, practical work, as well of a more purely scientific character, which have been done in connection with the School of Mines. I have heard it said that the equipment of our school would disgrace a third-rate German University, and I am afraid that there is some truth in the remark, but it is not the equipment of a university or an institution of which the members have most reason to be most proud; and I venture to think that if we take into account the work that is being done in the School itself and all over the world by the men who have gone out of the School, I think it will be admitted that the teaching staff of the institution have tried to do their duty. (Hear, hear, and applause.) Gentlemen, I thank you most heartily on behalf of my colleagues, both present and absent, for the manner in which you have received this toast. (Applause.)

Mr. JEREMIAH HEAD said:—Gentlemen, the toast I have to propose is that of "The Learned Societies," coupled with the name of my esteemed friend—I was almost going to say my learned friend—Professor Rücker. (Applause.) When I was asked by our worthy secretary to take the responsibility of proposing this toast, I almost shrank from doing so. I could not help remembering that the learned societies embrace not only all the present company, but also all the men of learning and eminence—scientific, literary and otherwise—in the whole of this great city, if not in almost the whole of the country. This I felt was a great responsibility for anyone to undertake, and being naturally of a modest and retiring nature, I fortified myself by remembering the old proverb that even the harmless, necessary, domestic cat is allowed, without any breach of etiquette, to regard Royalty and State with complacency. If that be the case, I thought there could hardly be any great harm in my venturing to look for a time upon all the great men of this city and country. Gentlemen, the learned societies of this country are very numerous. If you look into the Post Office Directory you will find no less than five columns devoted to their enumeration. A selection is, therefore, necessary. (Laughter.) They include those which are, so to speak, *alma matres* of the whole of science, such as the Royal Society, and the British Association; those which devote themselves to pure science, such as the Chemical and Geological Societies, and others, some of which devote themselves to applied science, such as the Institutions of Civil Engineers, of Mechanical Engineers, of Electrical Engineers, of Mining Engineers, and so forth. They also include some which are of a more mysterious character, and though, perhaps, you may understand them, I do not. There are, for instance, to be found in the Directory the society for the study of Theosophy, the Honourable Society of Cymrodion, and there is also the Hakluyt Society. These are, I must confess, out of my depth. I take it that the majority of the students of the School of Mines are probably more identified with those institutions who devote themselves more to the applied sciences. But those who are connected with these institutions of engineering will, I am sure, acknowledge how very much indebted they are to those who devote themselves to the cultivation of pure science. I have always in my mind that the two sorts of societies are not exactly on the same footing, for the institutions of applied science are, to some extent, provincial societies. They carefully guard the material property of the province with which they are concerned, whereas the students of pure sciences contain a great number of members who value science for its own sake, and are quite inadequately rewarded by any material benefit they may get for the immense amount of pain and labour they bestow upon research. The other day I was talking with a Professor of Geology, who told me that he had devoted no less than six years to geological work, besides a great deal of money in travels, while as yet he had not received a penny for it. Perhaps there are not many engineers or commercial men who would do that, and, therefore, I say that we engineers are exceedingly indebted to the men of pure science for the patient, arduous, and disinterested way in which they plod on making discoveries, which are afterwards snapped up by other people. Gentlemen, I have said it was some responsibility to propose this toast, and I have really felt it so; but that is nothing like the responsibility which I feel is upon my friend, Professor Rücker, for standing in the place of the science of the country in responding. I will, in conclusion, simply ask you to drink with all the enthusiasm of which you are capable the toast of "The Learned Societies."

This toast was received with musical honours.

Professor RÜCKER said: Gentlemen, I think it has seldom been made more difficult for anyone to reply to a toast than it has now been made for me. I must, however, say that Mr. Head's speech has at once relieved me of one anxiety. I was a little afraid that when so eminent a representative of one of the great technical societies as a past President of the Society of Mechanical Engineers was to propose the toast, and when I am, perhaps, more closely united with several societies more interested in pure science, there might appear from this division of labour that there was, more or less, a fundamental distinction between these two classes of bodies. Mr. Head has entirely relieved me of that apprehension. He has taken up what, in my humble judgment, is the right line—that although there are certain superficial differences

between the two, that although both groups of bodies have somewhat different kinds of work to do, they are, nevertheless, fundamentally engaged on the same task, while their aims and objects are practically the same. (Applause.) Sometimes, I am aware, there is a great disposition to represent science as a coy damsel, extremely reluctant to receive the addresses of the practical man and, perhaps, I can best reply to this by telling you a story, which happens to be a true one. (Laughter.) During the last Election, in a very hardly fought contest not 100 miles from the Midland coal fields, the Member, who won by a comparatively small number of votes, was during the Election attended by his wife, who was in the habit of making occasional speeches. On one of these occasions she was told she would have some rough customers to encounter. She persevered, however, and when she came to face the meeting, observing some signs of opposition, she at once said: "Gentlemen, I have been told I should be frightened of you, and to tell you the truth I am frightened of a cow, but I am not frightened of a micer." (Laughter.) In the same way I think I may say that science is not frightened of miners. (Applause.) She believes the work in which they are engaged requires for its proper performance scientific knowledge, and that the best among them will recognise that between the two there is an indissoluble connection. Indeed, the idea that there is any separation between them is incomparatively modern. Let me to prove this cite an eminent authority, Mr. John Dee, Queen Elizabeth's physician, who was the first translator of Euclid into English. In an admirable preface he gave a synopsis of the different sciences, and included not merely such subjects as geometry and optics, but also such eminently practical questions as the arrangement of an army and hypogeoidie. I will not insult any member of this company by supposing that he does not know what hypogeoidie is. I will not put my friends, Mr. Brough and Mr. Laws, in the ridiculous position of the man in the play who was astonished at his own abilities when he heard that he had been talking prose all his life without knowing it, by supposing that they may have been teaching hypogeoidie without being aware of the fact. If, however, I may explain the term in modern English, it is the art of finding a point on the surface of the earth vertically above a given point in a tunnel beneath it, and thus it will be seen that the subject which is, no doubt, discussed in the School of Mines, and which is of the first importance to miners, was included by Mr. John Dee among the more abstract sciences. In fact, he was led to the invention of this art—for he claims to have invented it—on account of a difference of opinion between two gentlemen, as to whether a certain mine lay under the land of one or of the other. Turning now more directly to the subject of the toast, I may, perhaps, say that I think the various learned societies are doing, each in its own way, very valuable work. If I may refer especially to those with which I am more closely connected, I may point out that the British Association—of which I am treasurer—has recently held a most successful meeting at Oxford, and has been adding to the number of its sections. The botanists came to us and told us that the meetings of the association formed, in their opinion, the most convenient opportunity for international conferences on botany, and they threw themselves into the work of the new section, which has in consequence been established, with an unqualified zeal. The Physical Society has also recently made a new departure. It has undertaken the publication of abstracts of foreign papers on physics—a task which in the past has been only undertaken by German. We hope, therefore, that in future we shall at the beginning of each month have a fairly complete *résumé* of recent works on physics. The Royal Society, in spite of the occasional criticisms of irresponsible and anonymous critics, is doing its work admirably. It is starting a new kind of meeting, to be called a discussion meeting, at which some subject of interest is to be fully debated. The first of these meetings will take place next week, and the subject for discussion is the new gas which Lord Rayleigh and Professor Rayleigh have discovered. I presume that I may include the Universities under the general title of learned societies, and within the last week I was a member of a deputation to the Prime Minister, asking him to request the Government to take steps for the establishment in London of a teaching University, which should include the existing University within its organisation. It will be pleasing to the present company to know that when it was necessary to choose some one man, to represent in his own proper person the learning of London, who should speak on behalf of the members of the deputation, that the choice of those interested unanimously fell upon the Dean of the Royal College of Science and School of Mines—Professor Huxley. (Applause.) Lord Rosebery gave a favourable reply, and, if the University is established, it is possible that the Royal School of Mines may be in some way connected with it. What the precise nature of this connection may be we do not yet know, but I can only hope that if the School is connected with the University, that it will play a part not unworthy of the Dean who has done so much towards its establishment. (Applause.)

Mr. BROUGH, in a few appropriate words, submitted the toast of "The Visitors;" speaking of the pleasure with which they welcomed so large and distinguished a company. He coupled the toast with the name of General Lloyd.

General LLOYD, in responding, said that he could not help feeling somewhat of an outsider, although he had been originally a student at the School of Mines, where he had had the advantage of working under Dr. Hoffmann and Dr. Percy. It was to their admirable instruction that he felt that he owed a great deal of whatever small success he had achieved. (Applause.) He thanked them heartily for the cordial greeting they had given to the visitors.

Professor BOYER proposed the toast of "The Old Students," and, in doing so, compared the ground covered by students of to-day with the comparatively restricted curriculum of earlier years.

Professor HUNTINGDON suitably replied to the toast.

Mr. T. HEALY submitted the health of the Chairman, alluding in high terms to his professional ability, as well as his social qualifications for the office he had discharged that evening.

The toast was received with musical honours.

The CHAIRMAN, having suitably acknowledged this compliment, proposed the health of the honorary secretary, saying that they had to thank him for any measure of success which might have attended the dinner.

A suitable reply from Mr. GRAVES terminated the proceedings.

#### African Gold Concessions and Development Company.

The secretary notifies that a first quarterly ad-interim dividend at the rate of 20 per cent. per annum will be paid to all shareholders on the register of this company on the 26th day of February, and the transfer books will be closed from that date until the 7th day of March for preparation of dividend warrants. The directors have resolved to declare interim dividends as payment is received from the sales of portions of the company's property, and they further hope the negotiations at present proceeding will enable them to declare a further interim dividend in the course of the next few weeks.

The transfer books of the ALMADA AND TIRITO COMPANY (LIMITED) (in liquidation) will be finally closed on Tuesday next, the 5th February, 1895, after which date no further transfers will be received.

COAL IN THE FAROE ISLANDS.—In several of the Faroe Islands there are coal deposits, more especially in Sudero. Through a long series of years researches and tests have been going on, without, however, much coming of it, and the rights have changed hands more than once. A syndicate has now the matter in hand, and whilst Professor Johnstrup, the Danish geologist just dead, estimated the deposits as containing upwards of 50,000,000 tons, the last reports bring the figures up to some 225,000,000 tons in Sudero alone, in addition to which there are deposits of iron and copper ore, &c. The quality of the coal is understood to be quite satisfactory, and the cost is calculated at some 33 per cent. less than that of the Scotch coal.

#### MEETINGS OF MINING COMPANIES.

##### AUSTIN GOLD MINES, LIMITED.

More capital to be issued. — Highly favourable accounts from the mines.—Dividends in prospect.

An extraordinary general meeting of the Austin Gold Mines (Limited) was held on Monday at the Cannon Street Hotel, E.C., Mr. ROBERT SMITH, J.P., presiding.

The SECRETARY (Mr. L. J. Langmead) read the notice calling the meeting.

The CHAIRMAN said: Gentlemen, of course, we have no account to place before you to-day, and, therefore, my duty is briefly to acquaint you with what has been done in your interests since the formation of the company, and I have very much pleasure in supplying you with a *résumé* of its position and prospects. Well, gentlemen, in the first place I may tell you that the shares were largely over-applied for, which, I think, was a sure indication of the appreciation of the public as to the value of the mining property of the company; and I am glad to be able to tell you to-day that the information since acquired satisfies your board that the encouraging statements made in the prospectus regarding the Austin Mine are more than justified, and I think I am perfectly safe in saying that we possess a most valuable property and one that is destined in the future to pay you handsome dividends, and, gentlemen, I hope at no distant date. In a letter addressed to my colleague, Mr. Hudson, by Mr. J. S. Pirrie, one of the members of the local board, under date Melbourne, 28th October, 1894, he says:—"You will, doubtless, have heard long ere this from Mr. McEacharn of the successful result of my visit to the Austin. It is a splendid property, and no mistake. I am not a mining expert, so do not base my opinion entirely on my own judgment; but I had the good fortune to be introduced to the best expert in Australia while in Perth—Mr. Callahan. This gentleman accompanied me up to the Marchison, and stayed four days with me on the mine. He is out here for a powerful American syndicate, in which Mackay, the Silver King, is interested, looking for mines. This Mr. Callahan tells me we have one of the best prospects he has seen in Australia, and he has been here for six months, two of which were spent in Coolgardie. From what I could see, there is no doubt about the richness of the ore. I broke out of one of the shafts as rich ore as anything I have seen from Bayley's or the Londonderry, at Coolgardie. You can see the big blocks I sent home at the company's office in London. This came out of the middle of a reef 4 feet 3 inches wide." Our first step after forming the company was to appoint the three gentlemen named in the prospectus as our local board in Australia, and we were pleased to find that Messrs. J. Sinclair Pirrie, F. K. Terry, and Colin Templeton—who are important shareholders in the company—at once cabled their acceptance of the trust offered to them. From the energy and attention to your interests shown by these gentlemen, I consider we are most fortunate in having secured so able and influential a local board. The transfer of the property was entrusted to the solicitors of the company here, and to Messrs. Stone and Burt, of Perth, who act as solicitors for our bankers, the Union Bank of Australia. This has necessarily taken some time to complete, as the legal formalities and the transmission of the necessary deeds occupy a long time when the post instead of the cable has to be availed of, but from cablegrams received the transfers have now been completed. We have not been less fortunate in our appointment of mine manager. In Mr. Aldridge we have a manager whom we believe to be second to none in Australia, and we are greatly indebted to him for the promptitude and zeal displayed in bringing our operations so expeditiously to their present encouraging position. On the 11th October we received a cable announcing that we had secured the only fresh water on the island. As you may all be aware, the question of water supply has been a difficulty and a source of serious apprehension as to the working of gold mines in many districts in Western Australia. But, gentlemen, we are rid of this anxiety; and not only are we rid of the anxiety, but we are assured that our water supply is ample that we expect we shall be able to supply other mines, deriving therefrom a considerable amount of revenue. The fresh water supply plant which we have found necessary has cost about £1000, and although this is outside our original estimate for plant, the benefit which it will confer we look upon as a valuable investment. This plant was shipped to the mines in the early part of December. As to the machinery, after very careful consideration as to which was the best for our purposes, an order was placed in Melbourne for a 10 head stamp battery, and engine and boilers for double that capacity, all of the most improved type, and which are now well on the way to the mines. As to firewood, Mr. Pirrie states that no difficulty is anticipated for some years in getting all that will be required, and at a moderate cost. I may here mention that our 10 stamp battery is so arranged that an additional 10 heads can be added as and when required. Mr. Pirrie further informs us that the tailings have shown themselves specially amenable to cyanide treatment, with a high extraction and low consumption of cyanide. In regard to the battery site, he says it would be impossible to find a more suitable site for the erection of a battery than the one we possess on the Golden Gate lease, where there is ample fall for the economical handling of the ore and tailings. In a paragraph under management, he says:—"It will be necessary to erect a house for the manager, making it an office, store room and assay laboratory as well. We have so much rich stone coming out of the Golden Gate shafts that it must be stored away under lock and key. And now, gentlemen, I have to place before you our recommendation to increase the capital of our company from £50,000 to £75,000. We are desirous of acquiring the property known as the Evening Star, the advisability of which step has been before us as far back as October last. On December 18 the mine manager telegraphed to the local board:—"Star looking well. Important that Austin Company should secure. Don't let me stand in the way of securing Star." Further information as to the great value of this property, and especially so to us, resulted in our board determining to secure the property, and negotiations thereto followed by cable. The terms named at that time, however, were such that we came to the conclusion that by waiting and watching we would be able to buy on very much more favourable conditions; and I am pleased to inform you that subsequent events have proved the correctness of our policy, for I am able to tell you that we have secured an option to purchase the Evening Star property on what we consider most advantageous terms—terms which we are only too glad to avail ourselves of. On the 8th of this month our local board cabled us that we could secure an option of the property for £3500 in cash and 4000 fully paid shares in the increased capital of this company. We lost no time in accepting these terms, so that to-day we are in the position of having an option for four months from the 12th instant to secure this property, during which time our manager (Mr. Aldridge) will satisfy himself in every respect by further proving the property, although from report received we do not consider this as really being necessary. We may, therefore, close the purchase of this property at any moment, and the resolution which I am about to propose will give your directors the power to make issues of the necessary capital as and when they may deem it expedient so to do. I have further to tell you that this purchase includes about 8000 tons of rich ore available for crushing—a most valuable acquisition—which will keep our battery in constant supply the moment it is ready to start, and enable our manager to open up our Austin Mines in the most efficient way for economical working. In the resolution which I will shortly propose for your approval—to increase our capital by £25,000—I have to explain to you that our intent is at this juncture to issue 16,000 of the same. Of this 4000 shares and £3500 in cash go to provide for the total payment of the Evening Star purchase, as previously explained, the balance providing us with £8500 additional working capital. I am

pleased to be able further to tell you that whilst you will have the first opportunity of subscribing for 12,000 of the 16,000, the issue is guaranteed at par by certain shareholders of the company, simply in consideration of their having a call for 12 months of the remaining 9000 shares at par. The company are, therefore, to receive par value for their shares absolutely free from any payment or deduction in the shape of commission. And I have to point out that in acquiring this Evening Star property, we do so at bed-rock price, in which no profit or commission to intermediaries of any kind are included. With the additional working capital this issue will supply us with, we shall be able to immediately add another 10 or 20 stamps to our present battery, and so bring our company at once to the position of largely increasing our gold production and dividend prospects. The proceeds of the 9000 shares before mentioned will be available to still further increase our battery powers as the mines are opened up and developed.

Mr. STARKEY asked whether the shareholders of the Austin would have the option of taking up a portion of the remaining 9000 shares at par.

The CHAIRMAN: No; we have, in consideration of having this issue guaranteed to the Austin Company at par, given these gentlemen the option of a call for the remaining 9000 shares for 12 months at par. I now beg to propose the following resolution:—"That the capital of the company be increased from £50,000 to £75,000 by the creation of 25,000 new shares of £1 each."

Major F. I. RICARDE SEAPER said: It is rising formally to second the resolution, I would only ask your attention for one moment to an extract from the prospectus which, probably at the time, did not strike you, but which, in the light of subsequent events, will show to you—although we did not know anything about it at the time, or had any intention of taking over the property—our appreciation of the value of the Evening Star, which it is now proposed to acquire. That extract is simply this:—"From a letter, dated 31st July, 1894, received from the mine by Mr. G. Marquand, manager of the Austin Gold Mining Company, of Melbourne. Re Austin Mine. Recent developments in Evening Star workings at the 50 feet level are very encouraging for us on our new area. In driving east about 1½ chain (about 33 yards) from our south boundary, the Evening Star passed through three lode formations, two of them carrying rich stone, which they are now taking out for dollying. Both shoots are striking out in our direction, and as soon as I get through diorite bar, should cut through first reef—Golconda reef—and will continue driving until I strike other lodes met with on Evening Star." The importance of this will be understood on reference to the plan which was issued at the time of the prospectus, and that, in addition to another extract which I shall read you from a letter which I have just received from one of my colleagues, will complete what I have to say on the matter. This letter, dated the 18th December, was received yesterday by Mr. Hudson. It is from Mr. Pirrie, the Chairman of our local board, to Mr. Hudson privately, and was not intended for publication, but I think it is really worth mentioning to you, because it confirms everything we have stated, and everything your Chairman has said to you. He says:—"Battery was shipped to-day, and the remainder of the fittings go on the 28th. I am urging on Aldridge to get it at work by April, and to have a real good crushing. You can depend on it that we have got the best machinery ever put on a mine in Australia, and for less money. Schlapp is very pleased with everything. We will not exceed the working capital of the company before we got gold to replace it; and I see no reason why dividends should not be payable in June. This gypsum formation that Aldridge has just tested is a big thing. I got him to try it when at the mine. There is an enormous body of it, but it will require cyanide to get the full value out of it." That I consider very satisfactory. I would just add that with regard to the technical part—that is, the selection of machinery and the system it is proposed to adopt for extraction of the gold—we have given the most serious and careful consideration, not only on our own account, but in conjunction with some of the leading experts in Australia. Here I may mention that with regard to the full extraction of the auriferous contents of the ore it will probably be necessary to adopt the cyanide process. That we are in a good position to do under the able guidance of Mr. MacArthur, of the MacArthur-Forrest Company, who has kindly given us the benefit of his advice and assistance in the matter. When we shall have got that into working order, you will extract probably 94 per cent. or 95 per cent. of the auriferous contents of your ore, which, as we know from experience on the Rand, is a very much more favourable result than anything they get there. (Applause.)

Mr. CUTCLIFFE: As regards the purpose for which the capital is to be raised, I must say that I think you have got a most splendid option. (Hear, hear.) I myself am considerably interested in other mines there, one of which is the Golconda, and the Golconda is one about which everyone who comes over reports favourably. The Austin we do not hear so much about, but I do not think that is in any way because the property is not equally good. I know that some people say it is even better; but it is probably because it is younger. At the same time there is a matter of sentiment in these things, to a certain extent, and, I think, coming up to the boundary of the Golconda is, from a sentimental point of view, an advantage to this company. Also, this Evening Star is reported upon by everyone who comes over as being a valuable mine, and I may say I am surprised you have got it for the figure that you have. (Hear, hear.) There is one other reference I would like to make, and that is whether it would not be possible for the board to send out a monthly circular—whether they have little or much to say. It is a great satisfaction to the company's shareholders.

The CHAIRMAN: As regards the monthly circular, that is, perhaps, tying us down to an exact period of time to send out a circular, but you may rest assured that we have arranged that everything of importance that comes from the mine shall appear in the papers the next morning; and I trust all the news that comes will be encouraging. I may tell you, with reference to the extract that Major Seaper has read to you, we have received this morning a cablegram which is so hazy that an exact explanation is absolutely unintelligible, but it repeats the story that they hope to pay a dividend in June.

The resolution was then put and carried unanimously, and the proceedings terminated with a hearty vote of thanks to the Chairman and directors.

### GRASKOP, LIMITED.

The cyanide process adopted.—Some assays from the mines.

The second ordinary general meeting of the shareholders in Graskop (Limited) was held on Wednesday, at Winchester House, the chair being occupied by Sir E. ROBERT ENDICUMBE.

The SECRETARY (Mr. E. S. G. Malins) read the notice convening the meeting.

The CHAIRMAN, in moving the adoption of the report and accounts, went *seriatim* through the items in the balance-sheet, remarking that it covered a period of 18 months. The finances of the company were not exactly all they could desire, for they were in debt for a sum of more than £5000. This was due to the fact that upon reconstruction they had made a 14.61. instead of a 2s. call upon the shareholders. At that time, however, nobody had anticipated the necessity of completing the tramway the whole distance of three miles from the mine to the mill. The mine was situated on the top of a high, steep hill, and the bullock traffic was liable to constant interruptions in all seasons, besides being at all times expensive. He had paid a visit to the mines in the course of last year with the view of consulting with the manager as to the desirability of completing the tramway along its whole distance, with the result that he had come to the conclusion that such a step was in the highest degree desirable. As to that matter, indeed, he did not conceive that there could well be two opinions. Accordingly, upon his return to this country, the board instructed the manager to proceed with the completion of the tramway, and the whole cost would amount to some £9000. This ex-

plained the debt in the balance-sheet, but he might state that arrangements had been concluded whereby they would be able to obtain £10,000 at 6 per cent. advanced on debenture. This was highly satisfactory, and besides meeting the charges of the tram construction would leave them a sufficient margin in hand to meet all expenses that might arise until the mine was in good working order; and, as they believed would soon be the case, going as a profitable concern. We had been in hopes of being able to announce at that meeting that the rent or royalty payable to the Transvaal Government had been largely reduced; but although he had had interviews with the Minister of Mines, there was nothing as yet definitely settled. The matter, however, had been left by the Raad in the hands of the Minister of Mines for settlement, and he hoped that it would not be delayed very much longer. He had grounds for believing that the ultimate decision would be given in favour of the company. Such had been the issue in other affairs of the same kind. With regard to the mine itself, its future depended, first, upon the quantity and quality of the ore. They had a 20-stamp mill and a Huntington mill, all in good working order, but they had lately found that the ores were to some extent refractory—the gold not combining easily with the mercury. The Lisbon-Barlyn and the Spitzkop Companies, whose properties were situated in the neighbourhood of their own, had adopted the cyanide treatment with success, and they had accordingly determined to try its application in their own case. Several offers had been made by outside parties to work the company's ore, but none of these had been of kind to merit acceptance. Certain samples of ore had been sent to the neighbouring mine, with an assay in one case of 6 dwts. 12 grains, and in another of 5 dwts. These assays must be considered as highly satisfactory, seeing that all doubt was thus removed as to the mine containing a sufficient quantity of gold to make it a payable one. As to the quantity of the ore, there was no question as to that. Even the overburden contained ore assaying at least 2 dwts. Under these circumstances, he felt sure the shareholders would approve the action of the board in urging the adoption of the cyanide process. Sir Robert concluded by moving the adoption of the report and accounts.

Mr. E. R. CUMMINS seconded the motion, which was carried unanimously.

The election of an auditor, and a vote of thanks to the Chairman and directors, terminated the proceeding.

### TRANSVAAL MORTGAGE, LOAN, AND FINANCE COMPANY, LIMITED.

The report of the shareholders' committee adopted.—Three of the committee to be appointed directors.

The adjourned ordinary general meeting of this company was held on Monday, at the Cannon-street Hotel, Mr. EDWARD WEBB presiding.

The SECRETARY (Mr. C. F. MacNicol) having read the notice convening the meeting,

The CHAIRMAN said: Gentlemen, from the notice which has just been read by the secretary, you will understand that this is an adjournment of the ordinary general meeting of the company held on the 31st of last month, when the usual motion was put that the report and balance sheet should be received and adopted. To that an amendment was brought forward to the effect that, before doing so, a committee of the shareholders should be appointed to confer with the directors, and subsequently, report to a meeting of the shareholders, and to give them time for that to be done. The meeting was adjourned to this day, January 28. That amendment was carried, and a committee was appointed by the shareholders themselves. Therefore, I will now ask your own committee to report to you, and after they have made their report we will resume the ordinary business of the meeting.

Mr. REED, of the committee of shareholders, said: At the last meeting, held on December 31, you appointed seven gentlemen to act as a committee. One of them, Mr. Parker, has not taken part in the enquiry, for the reason that he had not the time to spare, and, in addition to that, he was appointed without his knowledge. I regret very much that Mr. Weber, who is the largest shareholder in this company, is not present at this meeting, but he has been ill for the past 10 days. He was appointed Chairman of this committee, and in the early part of the enquiry he gave us very valuable assistance indeed in our investigations. The other five members, I am glad to say, have been very diligent in looking into the various matters which the shareholders asked them to do. We have had several interviews with the directors, and have discussed with them the present report, and I am glad to say that the directors coincide with the views of the committee to a very large extent indeed. I will now read you the report of the committee:—"Your committee beg to report that since the general meeting, held here on December 31 last, they have spent a considerable time in looking into the various matters bearing on the present position of the company. They have carefully considered the assets, resources, liabilities, and obligations of the undertaking, and your committee have pleasure in stating that every facility and assistance was afforded them by the directors and staff in the prosecution of their enquiries. Your committee turned their attention, in the first place, to finding out as nearly as possible the present value of the assets. They find, after going carefully over the books, documents, and from other information placed before them, that the present apparent depreciation in the company's assets represents an amount about equal to its paid-up capital. In arriving at this estimate your committee have refrained from placing any value whatever on the large amount considered bad and doubtful. In regard to this there is, of course, a possibility that, with careful handling, many of the items looked upon at present as doubtful may not only produce some return, but really turn out very valuable indeed. On the other hand, however, we must not lose sight of the possibility that some of the assets considered good at present may result in a loss. The next matter that occupied their serious attention was the consideration of the revenue and expenses. They find that the expenses of the company are far too large, and should be greatly reduced in order to keep pace with its diminished normal revenue. In this connection your committee would further remark that the financial position of the company for some time past has been so strained that extreme measures have had to be taken by the directors here and the manager in Africa to raise money to keep the business going, and you do not require to be told that when companies or individuals are driven to such extremities they do not get the accommodation required at a cheap rate. This has been the experience of your company lately in a very marked degree. Your committee cannot help commenting strongly on the management of the company in the past. Grave mistakes have been made, and errors of judgment, mainly in South Africa, are apparent in many of the transactions entered into. Large sums have been advanced to comparatively irresponsible parties, and the result is our present unfortunate position. In view of this your committee, in proceeding to consider the future of your company, came to the conclusion that some change in the board of management is desirable, and they have arranged with the directors that, if agreeable to the shareholders, two members of the present board will retire, and three new directors will be appointed. In considering the future of your company, your committee find that a call of £1 per share must be made. There is no visible way of avoiding this. The proceeds of this call will be sufficient to meet the company's present needs. The overdraft from the bank can be paid off, and the terminable debentures can be retired as they fall due. And besides, a large sum of money, amounting to about £6000 per annum, will be saved in interest and bank accommodation. As to the expenses, it is suggested that as we will have very little money to invest for some time to come, excepting what is derived from repayment of loans and the realisation of investment, the office expenses in London and Africa should be reduced to the lowest possible figure. Your committee think that a 50 per cent. reduction might be made without injury to the business. The steps necessary to arrive at this result may be safely left to

the future management; who, no doubt, in their desire to curtail expenses, will carefully consider the necessities of the company. Great care, watchfulness, and patience will be required in the handling of your assets in the future, and your committee are not without hope that some of them may turn out very valuable. Had the directors not been obliged to sell the Ingramsberg property, our position would be very different to-day, and, although we may not have another such among our assets, yet there are some that may result in considerable profit to the company. In any case, your committee believe that with good management your present position should considerably improve in the near future. Your committee also think that if some scheme could be devised whereby the founders' shareholders could be arranged with the whole of the debenture stock be retired, and the future liability on the shares—beyond what is necessary to pay off the debentures—could be cancelled, it would be a most desirable thing; for, so long as your shares have a liability attached there will be no satisfactory market for them." Mr. Reid then moved the adoption of the report.

Mr. KEARON, who seconded the motion, said that there were many reasons for unanimously approving that report, for, in the first place, it would be most unfortunate for the company if it had to go into liquidation. With careful nursing some of their assets might turn out well. Amalgamation, in his opinion, was also out of the question, for amalgamation invariably meant that the selling company would have to take something less than the value of its assets. He did not think that the position of the company was quite so bad as would appear at the first blush; for after going carefully into the matter, he thought that, as a going concern, there still remained about 7s. to the credit of every share, and even that position would be very much improved by the careful realisation of some of the properties which they held.

The report was then unanimously adopted.

The CHAIRMAN moved, and Mr. W. J. THOMPSON seconded, the adoption of the report of the directors and the accounts as presented at the ordinary meeting.

The motion was carried.

The CHAIRMAN stated that Messrs. H. Pasteur and C. D. Rose, two of the present members of the board, would retire, and that the three members of the committee to be taken on the board were Messrs. Reid, Weber, and Seaver.

Messrs. Thompson and Henwood, the retiring directors, were re-elected, and Mr. George T. Rait appointed auditor.

A vote of thanks to the Chairman closed the meeting.

### GOVERNMENTS STOCK INVESTMENT COMPANY, LIMITED.

A detailed account of the company's position.—The gains and losses.

An ordinary general meeting of the shareholders of the Government Stock and Other Securities Investment Company (Limited), was held at the Cannon-street Hotel, Mr. J. W. PHILIPPS (the Chairman) presiding.

The SECRETARY (Mr. J. Gunyon) read the notice convening the meeting.

The CHAIRMAN having referred in sorrowful terms to the loss sustained by the company through the death of Mr. Ellwood, the managing director, proceeded: I will now go through the figures in the balance sheet, but I only propose to refer to those which differ materially from the figures of last year. Our profit on sales came to £2647, and that mainly arose from sales of securities that had been converted to a lower rate of interest, and which it became necessary for us to sell in order to get the rate of interest we require. Our loss on sales during the year amounted to £5610, and those sales were mainly in cases where we anticipated defaults in future, and where we wished to sell the securities before the defaults actually occurred. As you see, our losses exceeded our profits on sales, and that amount was taken from the reserve fund, leaving the reserve fund now at £46,144. The sundry creditors at the end of the year amounted to £9637, but they consisted almost entirely of debenture interest, which was due and paid on January 1st. Turning to the other side of the balance-sheet, our investments amount to £1,250,857, nearly £40,000 more than they were a year ago. But this is accounted for by the fact that advances on securities are now only £2744, and it is very much less than our advances were last year. The dividends due and accrued on January 1st, 1895, amount to £8927, and the cash at the bankers to £12,554. Turning to the profit and loss account, the interest on debenture stock and deposits is £200 less than last year. The directors' fees stand at £700, which is the same as last year. As you are aware, the shareholders last year voted us an extra £400 a year for our services, but when we found that the income of the company was not improving, and that we were not likely to be able to pay a dividend to the deferred stockholders, we at once decided that we would not think of taking advantage of that vote of the shareholders a year ago. (Applause.) The management expenses were £130 less than last year. Turning to the revenue side of the profit and loss account, our revenue amounted to £37,733, which is £3626 less than the revenue of last year. I will show you as shortly as I can how that loss occurred. It occurred under four different headings, namely—first, from default; secondly, from the reduction in our loans; thirdly, from the redemption and conversion of certain debentures and government stocks; and, fourthly, in a loss on certain miscellaneous items of revenue. Our principal defaults were defaults of the Governments of Nicaragua, Guatemala, Costa Rica, Entre Rios, and the Zafra and Huelva Railway; but besides these there were certain minor defaults in that we did not get so much revenue from the Greek Monopoly bonds, and also from the bonds of the Piraeus, Athens, and Peloponnesus Railway, and one other investment. As to these defaults, some of them ought not to have taken place. For instance, the bonds of Nicaragua are amply secured, and the Government of Nicaragua ought to have met its interest on the bonds in full. We have done what we can to put things on a better footing. We, with others, were instrumental in getting a committee appointed, and one of the directors joined that committee. One day this week they are to meet the representative of the Government, and I hope they will succeed in coming to some satisfactory arrangement. As to the Guatemala loan, I regret I cannot say anything satisfactory. There is a total default of these bonds. The Government, so far, has done nothing to meet its creditors, and as far as I can gather from the newspapers, they are spending their time in considering whether they will go to war with Mexico or not. Costa Rica is also in default, and we have also a total default of the Province of Entre Rios. In the latter case the default ought not to have taken place. We hold the bonds of 1886 and 1888 of the Province of Entre Rios, which are secured on certain shares of a local bank which are pledged to the bondholders. The bank is in a good position, and it is absolutely paying a good interest upon those shares to the Government of Entre Rios. In fact, the Government is getting enough income from the shares in the bank to pay the interest on our bonds in full, and also to pay the sinking fund. They are, however, taking that interest, and using it for their own purposes. It may be within your recollection that our loans in our last balance-sheet stood at £53,983, but during last year the whole of that amount, with the exception of the trifling sum of £500, was paid off without our having called a penny of it. We were reluctant to have the loans repaid, because we were well secured, and the loans were at a very good rate of interest. Owing to the low Bank Rate, and money being very plentiful, it is difficult to make loans for a large sum of money and at a good rate of interest. We have, however, made fresh loans during the year, but our loans altogether only stand in the balance-sheet at £2744, and consequently, we have had a loss of revenue from that source. Then we have had another considerable loss of revenue during the year from the redemption and conversion of certain debentures and foreign bonds. We have considerable difficulty in impressing upon the minds of shareholders that, although the

rise in the Stock Exchange value of some of our securities is gratifying, it does not produce a corresponding rise in our revenue; in fact, in some cases, it leads to an absolute decrease of our revenue. I will give you an instance. You are doubtless aware that the Egyptian Government has converted its debt. We used formerly to have £50,000 of 5 per cent. State Domain bonds of the Egyptian Government. It was a splendid security, and a good rate of interest, but some time ago the interest on those bonds was reduced from 5 to 4 per cent. That conversion has been followed, I regret to say, by the conversion or redemption of many others. Up to last year we had a considerable sum invested in the Turkish Tribute bonds. These bonds were secured by the Egyptian Tribute, and paid a very good rate of interest. During last year we had to choose between having our bonds paid off at par, and taking 3½ per cent. interest instead of 5 per cent. Then, again, we had another loss in respect of the Smyrna and Cassaba Railway investment. When this company was sold our bonds were paid off at par. It was gratifying, of course, to make a capital profit on the transaction; but it was a considerable loss of income to us. To take an illustration nearer home—two or three years ago we invested some few thousands in Five per Cent Debentures of the Metropolitan Electric Supply Corporation. It was a very successful investment, and it paid us very well. But what has been the result? That company to-day is in such a position that they came to us and gave us the choice of two evils. We had either to take the money back at par, or only get 4½ per cent. instead of 5 per cent. interest. We chose to convert the 5 per cent. bonds into 4½ per cent., and to-day these bonds stand at very nearly 120 in the market, which is a gratifying profit, but it is a loss of income. Then we took some of the 6 per cent. debentures of the House-to-House Electric Lighting Company, and these have been converted to 4½ per cent., and again we have a capital profit, but a loss of income. We are going to have another loss of income, as the Taital Railway 7 per cent. debentures are going to be redeemed. We are, therefore, going to lose one of the best paying investments we have. The last investment I will mention is the Tamboroff Kozloff Railway Company. They are a 5 per cent. debenture, and have the guarantee of the Russian Government. They are a first-class security, and these again are to be paid off at par in the course of the next month or two; in fact, to sum up and to put the thing to you in a nutshell, within the next month we are going to have £18,000 of our investments paid back to us at par against our will. I need not say that to invest that money at similar rates and equal security is a thing that is by no means easy. Now, I will say a word or two about the gains of revenue, which, to a certain extent, have counterbalanced the losses. The gains are not so numerous as I could have wished, and, indeed, as I had ventured to hope. I told you last year that I thought the gains from various sources in the year would almost, if not quite, equal the losses. I am not generally over-sanguine in my speeches, but I am afraid I was a little optimistic on that occasion. However, we have had some gains. The Argentine Great Western Railway brought forward a scheme for the rearrangement of its debenture debt, and by that scheme we got our arrears of income paid to us in debenture stock, which was readily saleable; and also by the rearrangement of the debt the payment of part of our income—at any rate for the future—has been. I hope, to a great extent assured. Besides that, we got a payment during the year from the Government of Venezuela. The Venezuelan Government went into default during the civil war in that country, and two coupons became in arrear. Now, I am glad to say, the Venezuelan Government is paying the interest on its debt in full, and it is not only doing that, but by various instalments it is absolutely paying up in cash two coupons that were in arrear. We also got a small payment during the year from a large holding we have of debentures in the Sicilian Railway. Those had paid nothing at all for a long time, and we were very glad to get something from them, however small it might be. To turn from the past to the future, I am sorry to say again that I am afraid, in two or three cases, there may be fresh defaults in the coming year. I am glad to say, on the other hand, in two or three cases there are likely to be counterbalancing advantages. The Villa Maria and Rufino Railway is proposing a scheme for the rearrangement of its debenture debt. If the scheme goes through, as I hope it may, we shall obtain some part at least of our income, if not for the past, at any rate for the future. Then the Cordoba Central Railway (Central Northern section) is coming to a rearrangement of its debenture debt. The rearrangement, in fact, is almost completed, and it will give us in stock a substantial payment for our arrears, and make provision for some part of our income for the future. I may mention that since the beginning of the year we have actually received £300 in cash from that investment under the new scheme. There is also a scheme on foot for the rearrangement of the debenture debt of Santa Fé, but from private information at my disposal, I have some grave doubt whether the scheme is likely to be carried out. We have a large amount invested in these Argentine provinces, and it is most important that they should come to some arrangement with their creditors. To consider generally and broadly our position, I would have you remember that we in this company differ from many other companies in the scope of our investments. Our investments practically lie in two directions. They consist of debentures and debenture stocks of other companies; also of bonds of various governments, municipalities, and provinces, or stocks guaranteed by governments and provinces. In the bonds of even the weakest foreign governments or of the weakest municipalities, there is always this redeeming feature about them—they do not die and come to an end like the shares of many other ordinary companies. Speaking broadly of the position of our company, I think anyone who is acquainted with investments and who compares our list now with the list as it stood four or five years ago will admit that our securities are, on the whole, of a better class than they used to be. And our investments have now this feature—they are spread over more countries and over more classes of investment, and your income does not now depend on a few sources as it used to some years ago. That, I think, is the best hope of our company in the future. In the long run it will make our capital safer, and our revenue, whatever it may be, more stable and more secure in its character. I have pleasure in moving the adoption of the report and accounts. (Applause.)

Mr. FREDERICK HILL seconded the resolution, which was then put and carried unanimously.

The CHAIRMAN next moved, "That the dividend, as proposed in the directors' report, be declared and paid."

This was seconded by Mr. HILL, and carried.

The retiring director (Sir William Vincent) having been re-elected, and the auditor (Mr. C. L. Nichols) reappointed, the proceedings terminated with a cordial vote of thanks to the Chairman.

**BROKEN HILL PROPRIETARY COMPANY'S MEETING IN MELBOURNE.**—A Dalziel cablegram, dated Melbourne, 31st January, states that the half-yearly meeting of shareholders in the Broken Hill Proprietary Company was held there that day.—The Chairman stated that there were still in the mine 1,000,000 tons of payable oxidised ore suitable for direct treatment without including a large quantity of ore fit for concentration and sulphate ore easily treated. Low returns were to be anticipated during the next few weeks owing to the open cutting being insufficient and the furnaces out of repair. When these difficulties were overcome the usual yields would be resumed.—A shareholder asked whether it was true that only two years of life remained in the mine.—The Chairman replied that the board were in hopes that it would last longer, and, personally, he fully expected that it would. There were extensive supplies of other classes of ore which had not, up to date, been treated, and experts reported that the mine would be payable even when the operations were confined to the production and treatment of oxidised ores.

**JAY HAWK AND LONE PINE CONSOLIDATED MINING COMPANY (LIMITED).**—At an extraordinary meeting, held on Wednesday, two resolutions passed at a previous meeting for the voluntary winding up of the undertaking, and the transfer of all the property and assets to a new company were confirmed.

### ABBOTT'S GOLD MINE, LIMITED.

**Lord Douglas on the property.—A brilliant outlook.**  
Returns shortly expected.

The first ordinary (statutory) general meeting of the above-named company was held at Winchester House, Old Broad-street, London, E.C., on Wednesday, the chair being occupied by Mr. H. W. TUGWELL.

The SECRETARY (Mr. H. Milner Willis) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, as you are aware, the object of calling you together to-day is for the purpose of complying with the Companies Acts. It is not usual to go very deeply into details at these statutory meetings, and I shall, therefore, take up as little of your time as possible, merely contenting myself with giving you a few facts relating to our company. In the first place, it will interest you to know that the board has been strengthened by the addition of Lord Douglas of Hawick and Mr. A. Marshall Jay. Both of these gentlemen are largely interested in the company, and Lord Douglas has only just returned from Australia, and will give you some details with regard to your property. With respect to the mine, in the first place I would remind you that it is a developed mine, with a reserve of ore ready for milling. It is situated, as you know, in the Murchison district, which is better than Coolgardie in respect of having plenty of water, which is a very important point. Before completing the purchase a telegram was dispatched to the Hon. H. J. Saunier, asking his opinion of this mine, to which he cabled a reply that it was a thoroughly good one. A considerable difficulty arose in getting the property transferred, owing solely to the formalities deemed necessary by the Government on the other side. The unexpected difficulties, however, have all been overcome, and the mine has been transferred to a representative of your company, who has made the necessary declaration of trust, so that you are now in full possession of your property. All this while the development of the property has been in progress, and negotiations are now taking place for the acquisition of the machinery for milling the ore and extracting the gold. It is my pleasant duty to inform you that the whole of the 100,000 shares have been applied for and allotted, and that we start operations with a subscribed working capital of £20,000. I have also to inform you that Messrs. Monger and Simpson have consented to act as local directors. These gentlemen are largely interested in the property, and are two of the foremost men in the colony, and it is considered a fortunate thing that we have been able to secure their co-operation in this matter. I can only assure you that the board will spare neither time nor pains to bring the mine to a successful issue as speedily as possible. I should tell you that a Mr. Fitzgerald Moore had been expected to be here to-day, but has been unable to attend; he is acquainted with the property, and we propose to invite him to give us a report upon it—an additional opinion on the value of the mine, which we think will be useful. I will now ask Lord Douglas of Hawick, to address a few words to you. (Applause.)

Lord DOUGLAS of HAWICK, said he had been asked to say a few words in regard to the mine. Unfortunately, he had not himself visited the property, although he had visited the greater portion of the Murchison gold fields; but he could speak with a certain amount of authority, for he had seen men he could depend upon to see it, and had the reports of experts whom he believed to be the best men they could get for the purpose. The general opinion of those men was that this was a thoroughly genuine and reliable property, and one which was better than the great majority of properties that had been put before the public up to the present time. He placed the greatest faith in the report of Mr. J. McCord, a friend of his own, and a gentleman highly respected out there. He had been acquainted with the mine for the last two years, and knew the district probably better than any man out there. He had a conversation with Mr. McCord at Albany, just before his departure for England, and that gentleman expressed the greatest confidence in the future of the mine, and urged him to get the directors to put up a battery at once, as there was time really to be crushed, and all that was wanted to make the mine dividend-paying was to get the battery up and start crushing. Mr. McCord told him that in his report he had put his estimate of the value of the ore at the very lowest, and that he had even a better opinion of the mine. There were, he said, at least 1500 tons to 2000 tons of stone ready at that moment to truck to the battery, and he estimated that to give, at the lowest, 2½ ounces to 3 ounces to the ton. Since he (the speaker) had been home the directors had asked him to join the board, and he had great pleasure in accepting, because he thought it was a company which would do anyone credit who belonged to it. (Applause.) He informed his colleagues of the views of Mr. McCord and the general opinion in the district, and the consequence was that they had sent out for estimates for a 10-stamp battery. Of course, the difficulties of transport were rather great out there; but he should say that within three or four months after the order was closed the battery should be on the ground and ready to crush. Mr. McCord also told him, as he well knew, in fact, that there was a supply of water all over the field. In the adjoining lease to Abbott's there was an ample supply at a depth of about 150 feet. Mr. Fitzgerald Moore, whom they had hoped to see there that day, was interested in that adjoining lease, and informed him that they were themselves about to put up a battery. The water level in Abbott's, he thought, would be about 200 feet, and he believed they were now down 150 feet or 160 feet. The reason of the water level being deeper in their property than in that adjoining was that the Abbott stood on a small elevation, and, therefore, they had to go down before they got to the ordinary level of the country. From having been pretty well all over the Murchison he knew there was plenty of firewood for some time to come all round them. An advantage not possessed all over the Murchison was that there was mining timber within about six miles of their mine. The mine was not one of those specimen mines—that was to say, it was not phenomenally rich in any particular patches, but it was a mine in which the ore was of a pretty uniform character throughout. He knew Mr. Abbott, the prospector, very well; and although one must always, to a certain extent, discount the statements of a man who was personally interested in a property, he might say that he was very well respected in the colony. Being the owner of the mine, he was naturally most enthusiastic about its prospect. He was an old prospector, who had been in California in his early days and in Australia for many years, and his opinion was that it was as good as any mine on the Murchison field. In conclusion, Lord Douglas said he saw no reason why, when the battery was erected, and they had everything in order, they should not, within a few months, pay dividends which would satisfy the shareholders, and do credit to everyone connected with the company. (Applause.)

Mr. A. MARSHALL JAY said: I notice that the Chairman, in his speech, omitted one matter which may interest the shareholders, viz.: That it is intended to apply to the Stock Exchange to grant a quotation for our shares in their official list. If this request is complied with, the Abbott Mine will be, I think, the first West Australian property which has attained to this dignity. Another matter for remark and congratulation is the price at which our shares are quoted. It will be remembered that they were issued at a premium of 2s. 6d. per share, by which means the working capital was increased from £12,000—which was considered by some sufficient—to £20,000, which your directors believe is more than ample for all possible requirements. As far as I am aware, our shares have never since failed to command a premium, and, if what we hear be correct as to the value of the property, they must, in the near future, double or treble in value. We have had one or two adverse critics, some of whom stated that the capital had not been fully applied for, and others asserted that the underwriters were landed to the extent of 50 per cent. Well, gentlemen, the Chairman has already told you that the whole capital has been allotted, which disposes of the first statement, and I will now dispose of the second by assuring you that no portion of the capital

was underwritten. Lord Douglas has given you his views as regards the value of the mine, and if any shareholder or investor will take the trouble to ask any West Australian with mining knowledge his independent opinion of the property, the almost universal reply he will receive will be that there is nothing to beat it, and very few properties, if any, to equal it in Australasia. I am told that the shares will probably stand at £4 to £5 before the time for our first annual meeting. This may or may not be the case, but one thing at least you may rely upon, that your directors will spare neither time or energy to make the company dividend-paying at the earliest possible moment,

In reply to questions, Lord DOUGLAS said a battery had been erected at the Star of the East Mine, which was about 30 miles distant from the Abbott. It might be assumed that the company would be having returns within six months from now—probably less. The railway would be as far as Cue, which was about 40 miles from their property, in about two years. It would be opened in sections, so that immediately the track was laid every month would make a difference in their favour.

A vote of thanks to the Chairman and directors terminated the proceedings.

### THE BECHUANALAND EXPLORATION COMPANY, LIMITED.

**A good year's work.—The company's extensive properties.**

The sixth ordinary general meeting of this company was held at the Cannon-street Hotel on Thursday, under the presidency of Lord GIFFORD.

The SECRETARY (Mr. H. K. Evans) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, with your consent I propose to take the report and accounts as read. Our meeting has been postponed beyond the prescribed period, as it has been our practice of late to hold our annual meetings after those of the Chartered Company, in whose territory, as you know, we have very large interests. You will see from our report that, notwithstanding the check which the Matabele war put upon prospecting and other operations, very considerable progress has been made by the company during the past year. As soon as the Chartered Company's forces entered Bulawayo, we acquired, thanks to the energy of our general superintendent, a considerable number of rights granted to troopers who had served during the war to mark out gold claims, and also the right to eight farms of about 6000 acres each. In the course of a few months we had marked out 71 claims. Of these, a syndicate of the company's employees and others held interests in 200 claims. In addition to these we held 103 claims in Mashonaland, including the 13 claims to the east of the Cotopaxi Reef in the Victoria district. The value of these 13 claims has been considerably increased owing to the rich strike reported in the east drive on the Cotopaxi Mine, which, as you probably know, belongs to the Gold Fields of Mashonaland Company, in which we hold a very large stake. Up to the present time our expeditions in Mashonaland have been on joint account with Messrs. Mosenthal, Sons, and Co., who have paid half their cost. In order, however, to comply with a general wish, expressed by the shareholders at our last meeting, that the interests which we and Messrs. Mosenthal respectively held should be liquidated, we have formed a company, called the United Matabele Claims Development Company (Limited), with a capital of £100,000, in order to define the various interests in the properties we have secured. (Applause.) We and Messrs. Mosenthal have transferred to this company the whole of their properties, rights, and interests held on joint account territories, and for these we have received 32,500 fully-paid shares, subscribing £5000 each towards the working capital, and taking an option to subscribe further £10,000 each for shares at par. All the working capital for the new company has thus been secured. This arrangement is a very beneficial one to us, as for our proportion of the expense in securing the properties, rights, and interests sold to the United Matabele Claims Development Company (Limited) we received 32,500 shares, the value of which at the present market price is about £65,000. (Applause.) Mr. Jefferson Clarke (Mr. Hammond's representative in Matabeleland) is now examining and reporting upon several, among these, the Chimborazo, the development of which is now being pushed on, and with which he expresses himself pleased, as the results are very encouraging. The prospectors are busily engaged pegging further gold claims, and I hope that when we meet you next year we may be able to give an equally good report of the work done. The trading operations of the Bechuanaland Trading Association, in which, as you know, we hold more than half the capital, were very successful during the year 1893-4, and resulted in dividends of 10½ per cent. being paid on the ordinary shares, making a total of 34 per cent. paid during the comparatively short time the company has been in existence. I am pleased to be in a position to tell you that since April 1 last, the gross sales of the association show a very large increase. For the seven months ending October 31 last, the date to which complete returns have been received, the sales are 70 per cent. above those of the previous year, and there is every prospect, I think, of this rate of increase being maintained during the remainder of the year. When we see the volume of trade increasing like this, there can be little doubt of the rapid progress that is being made in the country. The railway is giving us greater facilities for transport at lower rates, whilst we have been made the agents for the Chartered Company, and I am pleased to say that to show their good will towards us they have placed in our hands a very large order for goods. I cannot pass without referring to the severe loss the company has sustained by the death of Major Allan Wilson, whose gallant exploits and heroic death you are so well acquainted with. I feel sure the grant we propose to make in recognition of his services will meet with your unanimous approval. (Hear, hear.) Turning to the accounts, you will see that, during the year ending March 31 last, we have made a profit of £5013 19s. 7d., which we have carried to reserve, increasing the amount to £32,187 4s. 7d. Since March 31 the position of this company has very greatly improved. We have taken advantage of the rise in prices to realise some portions of our investments at very handsome profits. Interests, too, have been secured in other undertakings, which promise to give exceedingly profitable results. The company has a considerable stake in the Tsva Exploring Syndicate (Limited), which it was instrumental in establishing early last year, and whose shares now stand at a high premium. This syndicate acquired a large number of gold claims, several farms, and other properties in Matabeleland and Mashonaland, which it has just sold to a substantial company, with a large working capital, thus realising a large profit from its enterprise in being one of the first to send an expedition into Matabeleland as soon as the war was over. Our report tells you that the provisional balance-sheet and profit and loss account, prepared on the 15th of this month, shows a profit for the 9½ months of no less than £38,753 7s. 8d., which, added to the profits previously reserved, gives a total of £70,941 18s. 8d. For the purposes of this balance-sheet we have valued the company's investments at £184,910, which we consider to be a moderate and safe estimate. Of course, the market value of the shares held by us are liable to continual fluctuations; but, on the whole, I think the values put upon them will turn out to be under rather than over estimated. The profit of £70,000 we have made is equal to 35 per cent. on our capital. It is possible—indeed, I think it is very probable—having regard to certain undertakings we now have in hand, that when our final accounts for the year are made up we shall be able to show a considerable addition to this profit. (Applause.) But we think the most prudent course is to distribute, by way of interim dividend, less than a third of the profit now available. We have, therefore, decided to pay a dividend at the rate of 20 per cent. per annum, free of income tax, for the first six months of the year 1894-5. This will absorb £20,000, leaving over £50,000 still undivided, which, as I said before, I hope to see considerably increased by March 31 next. I may mention that,

Since the date at which our provisional balance-sheet was made up, we have received in dividends and by profit on realisation of assets about £10,000 equal to one-half of the dividend we are now paying. (Applause.) I feel sure, gentlemen, you will approve of our decision, and will agree with us that, notwithstanding the very favourable condition of our finances, we are wise in not distributing more until after the completion of our financial year. It is a sincere source of congratulation to us that the company has now entered the dividend list. (Applause.) We have worked hard for you in the past, and have had many an uphill battle to fight to protect your interests, but throughout we have been encouraged by the patient and steady support you have always extended to us. I hope and believe that good times are now before us, and that the company will reap a rich reward for its enterprise in being one of the first to expand its capital in Rhodesia. It is very gratifying to us that the confidence which both this company and the Bechuanaland Trading Association have always shown in the future of that country has not been misplaced, and that both of them are now receiving good returns on the capital invested there. In our balance-sheet at March 31, 1894, our assets, representing the cost of the concession we held from Chief Khama, stood at £93,866 10s. 10d. Some of these have been realised, and for the purposes of our provisional balance-sheet on the 15th inst., we have valued the unrealised assets under this head at £30,000. You will be pleased to hear that since our report was issued we have agreed to sell a portion of these remaining assets to a substantial company for 34,000 shares, thus liquidating the whole cost of Khama's concession, a result which is most satisfactory. Having regard to the position of the company to which we have sold these assets, I think we may fairly hope to realise our 34,000 shares at a good premium. I have now a very important announcement to make to you, and that is, that Mr. Rhodes, recognising the great assistance which this company has rendered to the Chartered Company by freely investing its capital in the country, and as a recognition of the valuable services rendered by its officers, has given us a third interest in a grant of 300 square miles of land on the same terms as those granted in the case of the Lippert Concession as regards land and minerals. This grant also includes the right to mark out a coal area on similar terms that have been granted to others. You will readily understand what an exceptionally valuable grant this is, as, if we are fortunate in locating it, we may soon be the possessors of many miles of gold-bearing reefs. To sum up the situation to-day, we have about £77,000 cash in hand; we have entirely liquidated the £96,000 at which our concession stood (still holding our right to a large area of land in the southern portion of Matabeleland, under agreement with the Chartered Company); we hold shares and interests in sundry undertakings, which, at a moderate valuation, we estimate to be worth £184,910, and, in addition to all these assets, we have now the valuable interest given us by Mr. Rhodes in 300 square miles of land, as well as sundry claims in Matabeleland and Mashonaland, and the right to mark out 100 claims in Khama's country. Our position, you will see, is thus exceedingly strong, and one which you may all be proud of. When next we meet I see no reason why we should not be able to reward you for your patience with even a better dividend than we are now paying. (Applause.) Before sitting down, I wish to reply publicly to a gentleman who, with his friend, holds a large number of shares. He asked me whether I could give him and his friends an assurance that it was not one intention to allow ourselves to be absorbed by parting with a large portion of our interests to other companies. Speaking for myself, I say most decidedly and emphatically—No. I consider our position is far stronger with our present capital than it would be by any amalgamation, and I firmly believe that this company will take one of the most leading positions in the Chartered Company's territories. I now beg to move the following resolution: "That the directors' report and statement of accounts to March 31 be and the same are hereby adopted." (Applause.)

Mr. GEORGE CAWSTON seconded the resolution, which was then put and carried unanimously.

Major RICHARD SEAVIER, F.R.S., said he had much pleasure in proposing the re-election, as a director, of Lord Gifford, the able and worthy Chairman of the company. His lordship's colleagues on the board were aware of the very valuable services which he rendered and of the time and devotion which he gave to the interests of the undertaking.

Mr. C. H. THOMAS seconded the motion, which was also carried unanimously.

The CHAIRMAN having briefly thanked the shareholders for re-electing him,

On the motion of Lord RICHARD BROWNE, Messrs. Welton, Jones, and Co., were re-elected the auditors of the company, at a remuneration of 50 guineas.

Lord RICHARD BROWNE then proposed that a hearty vote of thanks be accorded to the Chairman and directors, and to the very able superintendent of the company on the other side, the Hon. Maurice Gifford. The statement which the Chairman had placed before the meeting showed the really good work which had been done. The interests of the shareholders had been thoroughly safeguarded, not only so far as London was concerned, but also in South Africa, by Mr. Gifford. He (the speaker) had means, quite apart from what he had heard in connection with this company, of knowing what that gentleman had done in that country. He had a son who had been out there during the whole of the campaign, and who had met Mr. Gifford, and he spoke in the very highest possible terms of the services that gentleman had rendered. His Lordship added that he hoped the vote of thanks, after being passed, would be communicated to Mr. Gifford, the company's agent.

Mr. BLETCHLEY seconded the resolution, saying he had intended to make a few remarks as to the services rendered by the company's superintendent, Mr. Gifford, and he was very glad the proposer had included his name in the vote. He had the privilege of knowing Mr. Maurice Gifford personally, and of knowing, too, how energetically he carried out the duties which it fell to him to perform. He was sure they were perfectly safe, as a company, in Mr. Gifford's hands, and that that gentleman would always serve them to the best of his ability.

The vote was unanimously carried, and with a brief acknowledgment of the compliment by the CHAIRMAN, the proceedings terminated.

### ZAPOPAN MINES.

Five reefs on the property.—Mr. Woodyatt's testimony.

An ordinary general meeting of the shareholders in the Zapopan Mines (Limited) was held on Thursday, at Winchester House, Old Broad-street, E.C.—Mr. CHARLES RONALDSON presiding.

The SECRETARY (Mr. W. M. Pigram) read the notice convening the meeting.

The CHAIRMAN said: Ladies and gentlemen, it is my privilege to address you to-day for the first time; for although the company has been in existence for some time, it has done no business. You are aware it was originally started with the intention of taking over and working a Mexican mine. This idea was abandoned. The company has, however, now acquired an Australian mine, and it is only recently that your present board has been appointed by you. I regret to say I have very little further information to give you in reference to your property beyond that contained in the very able report of Mr. Woodyatt, which has been circulated amongst you, and as it deals so lucidly with the whole subject, it leaves very little for anyone to say who follows him. There seems little doubt that we have a most valuable gold mining property now partially developed, and only requiring proper management and development to prove itself one of the best dividend-paying mines. I know this is saying a good deal; but, as you will have seen from Mr. Woodyatt's report, our mine is not simply a hole in the ground or barren waste which may or may not turn out gold-bearing, for it is turning out gold to-day in payable quantities and will, I am convinced, continue to do

so. The property has been worked up to now in the most crude and unmineralike fashion, yet it has paid, and paid well; and that what we say is, if it be worked scientifically and properly managed it must pay better still. If, for instance, last year the owners made nearly £7000 profit—we are credibly informed they did—then we ought to make £50,000 a year, if we spend money on the property in erecting proper machinery and carrying out developments. I think before I have finished I shall be able to show you that we can do it, and, further, Mr. Woodyatt, who is present, will tell you what his ideas are about it. First of all, we are advised that if we erect a 20-stamp mill, making, with the present 10 stamps, 30 stamps in all, we can from the first drop of the stamps make money. In fact, we ought to make over £50,000 per annum from the working of 20 stamps only, and, what is more, I believe we shall do it, and do it easily. Mr. Woodyatt tells us the present 10 stamps could turn out at least double, if not treble, the amount of gold they do now, if we erect a new engine to drive the mill. Well, we intend to have the new engine and the 20 stamps too, and if we are not making £50,000 a year from these 30 stamps alone before we meet again I shall be very much surprised and disappointed. We ought to do this, gentlemen, and I will tell you why—we have a developed mine; we have shafts sunk on several portions of our property. We can raise now from the southern portion of the property alone, sufficient quartz to keep a 30 stamp mill continually going. Expert local opinion says the quartz will average 2 ounces to the ton; but if it only averages 1½ ounce, at Mr. Woodvatt's estimate, we shall make the revenue I have mentioned. And then we must bear in mind that we have five distinct reefs running right through our property for over 1 mile, which will give us at least 20 feet of crushing stuff. We can, therefore, while working one portion of our property, at the same time be developing another portion ready for erecting further stamps, which we intend to do. We are in the very heart of one of the most permanent gold fields of the world, with mines all round us paying, and paying well. As I said just now, our mine is proved and payable. The Government Inspector of Mines, in his Blue-book laid before Parliament, reports very highly on this property. In speaking of the southern portion, he says:—"There is an immense lode running through it; from the surface of this lode the quartz has yielded 18 dwts. of gold to the ton." Of the northern portion, he says:—"A considerable amount of work has been done. Five shafts have been sunk, averaging in depth 90 feet to 100 feet; the whole of them are within a distance of 300 feet on the line of lode. I consider this a good property, and one which, when well opened up, should give payable returns." Speaking of the gold raised he says:—"Several parcels of stone from the northern and southern portions of the property gave highly satisfactory results—70 tons, 140 ounces of gold; 174 tons, 410 ounces; 144 tons, 40½ ounces; 10 tons, 12½ ounces; 66 tons, 40 ounces; 174 tons, 410 ounces; 1587 tons, 1157 ounces; 1606 tons, 805 ounces. The whole of the gold obtained was won from the surface downwards to very shallow depths." You have all received a copy of the circular giving the results of assays made by Messrs. Johnson, Matthey and Co., of quartz taken from various parts of the mine workings by Mr. Woodvatt, and it is, therefore, needless for me to waste your time by going into this again, except to say that it conclusively proves that the mines are rich in gold over their whole area. We have, as you know, a large stack of about 7000 tons of valuable tailings, which we reckon will yield about ½ ounce of gold to the ton. As a matter of fact, samples, according to the assays of Messrs. Johnson, Matthey, and Co., just mentioned, have gone very considerably higher, 3 tons of pyrites tailings from an adjoining property sent home and treated realising £80 odd, or nearly £30 a ton. I could go on giving you evidence of the richness and value of this property, but I will simply quote one more instance. Mr. Hillson, a gentleman of repute, and well-known in the district for 16 years, being a bank manager and mineowner, says: "I am prepared to say, and without any fear of contradiction, there is no property in this country with a title of the show." Ten tons of stone crushed realised 3000 ounces of gold, or 300 ounces to the ton. According to the Government Blue-book the stone being raised on our northern boundary is averaging 3 ounces to 4 ounces to the ton. From an adjoining claim, from a shaft 40 feet deep, a small bucket of quartz gave 125 ounces of gold. A piece of gold was found in the casing of a leader which weighed 150 ounces, and from a shaft 60 feet deep the quartz has run 12 ounces to the ton. You must remember, gentlemen, that these figures are from the Blue-book. There is one important feature to which I wish to call your special attention. In these matters the reports furnished on mines by private experts are usually criticised severely, and regarded with caution, if not suspicion, no matter what the personal standing of the man may be. It is strong testimony to the moderation and truthfulness of Mr. Woodyatt's report that we have here the official report to Parliament made by the Government Inspector of Mines—Mr. Parkes—a gentleman of high attainment, holding a responsible official position. Mr. Parkes' report on the prospects of this property more than confirms Mr. Woodvatt in all essential points, and is much more glowing in its terms. The figures he gives of actual crushings are so good that, coming through a less responsible source, you might fairly ask that they should be verified. There also exist, accessible to shareholders or critics, official reports by the Government Warden of the gold field, by the Government Resident, and by the Government Geologist, all of which denote the excellence of this property, and, generally speaking, accord it higher praise than Mr. Woodyatt has thought fit to include in his report. I think I have said enough to show you that we have a good property. Our policy is to thoroughly develop and work the southern portion of it first, and as soon as we get on well with that, and are making good profits, we will then take in hand the northern portion, fully develop it, and erect a further 20 stamps; but we shall proceed with caution. We have plenty of water; we are within 200 yards of a railway, and 100 miles of a good seaport; our transport facilities are, therefore, excellent. What more do we want? Only to develop the property economically, to make it, as Mr. Woodyatt says, one of the best-paying gold mines of the world. I don't think I will detain you any longer, so I will now call upon Mr. Woodyatt to say a few words to you. I could detain you at considerable length, and repeat in other words the facts I have endeavoured to place before you to-day; but any facts I could put before you would simply confirm the statements I have already made. So far as we can learn, we have every reason to believe there is no exaggeration whatever in the statements that have been made by the various authorities whose names I have mentioned to you. Mr. Woodvatt is present, and as he has inspected this property, and has had great experience in Australia, I think it will be agreeable to you that he should give us his personal assurance of the value of this property, and if, when he has finished, there are any questions you would like to put to him, I am sure he will be happy to answer them. (Applause.)

Mr. JOHN WOODYATT: Ladies and gentlemen, I visited the property the meeting is considering, and furnished a report to the directors of the company, which has been published. When I wrote that report I was, of course, not aware that it might be published—I did not know what use might be made of it, and, being careful of my own reputation, I was very cautious in not allowing myself to be betrayed into a too enthusiastic expression of what ideas I had of this property. As the Chairman has remarked, experts' reports on mines are very often severely criticised and regarded with a certain amount of suspicion. I may explain to you, at any rate, to enable you to judge of the value of my report, the circumstances under which I came to make it. Having been engaged in mining matters in Australia for a good many years, and finding myself, two years ago, in this part of North-Western Australia, I heard so much of this property that I went considerably out of my way to look at it, and I was so struck with what I saw that I visited the place several times, and had a good opportunity of looking all over it. I was leaving for England in the middle of last year, and before doing so I went to the property again, had a good look through it, and asked the owners to give me the offer of it. But I was too late; they could not do it. They had already put it under offer to a gentleman in Melbourne, and so I had my visit practically for nothing. But I went all through the property as carefully as if I had been buying

it myself, and made very copious notes of everything I saw, I saw everything for myself, and tested it thoroughly, and the result of that examination you have had in print. (Hear, hear.) It is not a mine that has been worked out in the least, and it is not a mine that has to be taken on trust. It has just been developed sufficiently to show that it is a very valuable property, and it has not had the eyes or anything else picked out of it. After I had visited the place, and when I was passing through Adelaide, I went to the Mines Department there and got all the papers about mining that they had. On my way home I looked through those papers, and I found that my view was thoroughly confirmed by the Government officials, whose duty it is to report periodically to Parliament on the progress of the mining industry. There is sufficient work done there, as I have said, to show five reefs opened up, and every bit of those reefs, I believe, from end to end, is payable. Wherever I tested them they were payable. I took pieces of stone myself from the reefs, I took tailings from the battery, and I did not know whether they contained any gold or not until I had them tried. Some I tried myself on the spot, and got very good returns; some I brought to England, not knowing whether I was carrying road metal or not, as far as value was concerned. I handed the stones over to Messrs. Johnson, Matthey, and Co., and their report you have seen. Every test they have made shows payable gold, and that simply confirms my own view. Some of the figures that have been quoted to day from the reports of the Inspector of Mines which were laid before the Colonial Parliament are rather tall—hundreds and thousands of ounces of gold. You might naturally ask how it is there is no allusion to that in my report, and think there is a discrepancy somewhere, and that they may not refer to the same properties. I can assure you that there is no discrepancy in that respect at all. I was not writing a puffing report, and there was no occasion for me to drag in little fancy crushings which had been got during the last four or five years—ever since the property was discovered. They speak for themselves; but I can explain to you how they got on that property 3000 ounces from 10 tons—which sounds like a second Londonderry—and other crushings exceedingly rich, but not quite so good as that. The reason is this:—During my experience in Australia, and in the Malay Peninsula also, I have observed—and it has been observed by miners there generally—that where carbonaceous slate is found in contact with quartz reefs, there they find exceedingly rich pockets of gold. That principle rules mining on the Gympie Gold Field—a very prosperous one in Eastern Australia—which has been very prosperous since 1867, and which is even now constantly turning out large quantities of gold. A geological examination there has shown that these carbonaceous slate beds exist and intersect the reefs at certain points, and invariably where the slate is found in actual contact with the reefs enormously rich deposits occur. I have seen, myself, in one of the mines there, 1000 ounces of gold brought down in every shot for a fortnight, and the result of the fortnight's work was tons of thousands of pounds. The same principle occurs in other fields in Australia. In Ballarat they have not the carbonaceous slate that exist in the field pencil marks—thin veins of carbon, and where those veins intersect the quartz, very heavy gold is found. I have noticed the same in the Malay Peninsula. My attention was first attracted to the existence of this carbonaceous slate in your property by seeing some in the railway cutting close by, and I looked for it, and found at the bottom of the deepest shaft sunk on the property that they were just getting into the carbonaceous slate. The existence of the slate in that field accounts for the occurrence of these rich patches of gold to which the Chairman referred. The search for these rich patches, which I am certain exist in this ground, has not yet taken place, because the workings hitherto have been limited to shallow depths, say, 50 feet, and this black slate does not come in generally until you get down to 130 feet or 150 feet. So, in future, the operations, I hope, of this company will be attended from time to time with the discovery of rich veins, such as I have referred to. The same was found in a mine a few miles away from it. The geological formation of the country is the same all down the west coast of Australia; the Murchison and Coolgardie fields are practically the same geological formation, and I have no doubt the slate beds will be found there also. At any rate, a few miles from this place I visited a mine where at that time they were getting enormously rich stone, and I found there was a nest of gold in the heart of one of these black slate beds. A gentleman interested in the district happened to acquire a specimen from that same crushing, and I have got the loan of it simply to show you. You can see a mass of gold sticking out of the stone, and that is about the smallest specimen. I saw a rare lot of it. In my report I have not made allusion to any rich finds like that, because that is an uncertain element in gold mining, which it is no fair to make too much of. The property, apart from that, stands in the position of a mining industry, not a speculation. There is a vast body of visible stone which is being worked at the present moment with payable results, and being worked in a very small way. The men who had the property were working men. They acquired it, and borrowed the money to put up appliances, and they have worked it themselves, without employing any alien labour whatever beyond a little on sharing terms. You can understand that the returns they have been getting during the last four or five years are, considering the appliances, marvellously good; and what they have done in a small way a company ought to do in a very large way. There are all the elements of a successful business there, and it is removed from the speculative character which usually attends gold mining. I have no doubt that all the gold-bearing reefs in Western Australia and in the northern part of Australia, which, as I say, is of the same geological character, will average right through about 2 ounces of gold to the ton. Other men I met out there, who are as capable of judging as I, thought this property could yield 2 ounces to the ton, and that the only limit to the quantity that could be put out was the limit of machinery. There is a vast quantity of stone visible from end to end of these blocks, and we know that it exists to a great depth. It has been proved down to a fair depth, and that tells, in practical mining, that it exists in even greater bodies below. There is so much stone readily accessible there that it really does not matter how many heads of stampers you put up. If you were to put up 500 to-morrow there is the stone there to keep them going. In all these reefs, when you get down to the water level, pyrites will appear in the stone, and the gold that at the surface has been freed by the action of the air and water becomes more or less refractory when you get down to the water level. Where the pyrites contains a combination of refractory minerals, the difficulty of getting gold out is very great. In some countries you may have stone that will assay 6 ounces, 7 ounces, 7 ounces, or 8 ounces of gold to the ton, and an ordinary battery furnace will not extract it. The great Mount Morgan Mine was a failure for two years, because they could not get 1 ounce of gold to the ton, although the assays showed 5 ounces to the ton. In this place I was pleased to observe that the pyrites is not refractory. It is simply iron and arsenical pyrites, and there is nothing to prevent the pyrites from realising its full value. I have suggested to the gentlemen who have asked me questions about this that it is not advisable to spend a lot of money in putting up reducing appliances for treating the pyrites on the spot, because you have cheap labour and cheap railway carriages to the port, and you can bring the concentrated pyrites home to England and sell it here, and get not only the value of the gold, but of any by-products there may be in it. The Chairman has referred in his speech to a trial shipment of 3 tons which were brought home from a neighbouring property, and I happen to have had something to do with that, and know the circumstances. The 3 tons were simply bagged, brought home to England at a cost of not more than £5 per ton, sold, and realised £30 per ton, thus showing 6 ounces or 7 ounces of gold to the ton in these pyrites. This property will at depth turn out a great deal of pyrites, the battery will save a great proportion of the gold, the pyrites will hold the rest, and you can ship it to England and realise it. I mention that because it is a common thing there for miners to put up a battery and run their stuff through it, and get what gold they can and let the tailings go, and they are really parting with the most valuable portion of their stone. There is in this property, said the speaker, in conclusion, that element of profit which is very



**C. PASS & SON (Limited), BRISTOL,**  
ARE BUYERS OF  
LEAD ASHES, SULPHATE OF LEAD, LEAD SLAGS,  
ANTIMONIAL LEAD, COPPER MATTE, TIN ASHES, &c.  
and DROSS or ORES containing  
TIN, COPPER, LEAD, AND ANTIMONY.

**H. E. BANDELL,**  
Frankfurt a. Main, Germany.

Representation as Agent of Foreign Houses and interests, and all  
Business of a similar nature.  
Imports and Exports on Commission.  
Ten years experience in Europe and Twelve years in America.  
Correspondence solicited.

**LAMBERT'S WHARFAGE CO.,**  
**PRINCE OF WALES DOCK, SWANSEA.**  
Ores, Mattes, Regulus, and Bars received and prepared for market.  
Copper, Lead, Tin, Spelter, and Pig Iron Received, Weighed, and  
Sampled, and Warrants issued against same.  
N.B.—Warrants are on accepted list of London Metal Exchange.  
Regular lines of steamers from America, Europe, &c.  
Consign goods to Lambert's Cranes, Prince of Wales Dock, Swansea.

**PACIFIC MINING AGENCY AND TRUST COMPANY.**

A Corporation organised under the Laws of the State of California  
CAPITAL STOCK, £50,000.  
BOARD.

IRWIN C. STUMP (Chairman) Manager of the Estate of the late  
U.S. Senator Hearst.  
IRVING M. SCOTT, Manager Union Iron Works.  
JACOB H. NEFF, President California Miners' Association.  
P. N. LILIENTHAL, Manager Anglo-California Bank (Limited).  
W. F. GOAD, Vice-President, Wells, Fargo, and Co.  
D. M. BURNS, Capitalist.  
R. C. CHAMBERS, Manager Ontario Mine, Utah.  
WILLIAM C. RALSTON, Secretary (Secretary California Miners  
Association).

BANKERS—The ANGLO-CALIFORNIAN BANK (Limited).  
HEAD OFFICE—MILLS BUILDING, SAN FRANCISCO, CAL.

THIS COMPANY sells Mines, Mining Claims, Ditch Properties,  
and Water Rights ON COMMISSION, and will act as Agent and  
Broker for the Sale and Purchase of such Properties.

It is intended to conduct the Purchase and Sale of Mining Claims,  
Ditch Properties, and Water Rights on the same basis as a real estate  
transaction.

The Company is prohibited by its Articles of Incorporation from  
buying or selling on its own behalf, or except upon commission, or  
as agent or factor for others.

The buyer pays no fees whatever, and there is no incentive to  
advance the price beyond the original figures at which the price and  
commission have been agreed upon with the seller.

It is not intended only to negotiate the sale of an entire property but  
interests in such may be sold or money obtained for development work.

This Company especially solicits the business of making reports  
or examinations for non-resident mine owners on any of their mines  
in the United States, and obtaining special information as to their  
condition and so forth (said reports being confidential).

Those who conduct the business of the Company have had long  
experience in mining operations, and it is their intention to place  
the Company in a position to inspire the confidence of all who seek  
its assistance in its integrity and fair dealing.

We respectfully refer to any Bank in the City of San Francisco  
and to the Anglo-Californian Bank (Limited), London, as to the  
standing of the Board of Directors of this Company.

Descriptions of properties for sale with maps, reports and all  
necessary information, are left on file in the office of the Company.  
Abstracts of such reports with prices of mines will be furnished  
upon application.

California has produced £267,000,000 in gold, and is still producing  
£2,680,000 a year. There are thousands of claims requiring capital  
for development. In other Pacific Coast States and Territories there  
are abundant opportunities for investment in mines of gold, silver,  
copper, lead, coal, and so forth. Information concerning these will  
be furnished by this Company on application.

This Company will also furnish competent engineers, superintendents,  
foremen, miners, millmen, assayers and others connected  
with the mining industry on application, furnishing their references  
and so forth.—Cable Address, "CHAPIN," San Francisco.

**THE BUTE WORKS SUPPLY COMPANY, CARDIFF.**

Telephone: No. 45 (Post Office and National).

Telegrams: Gethin, Cardiff.

**WAGONS.**—New to Latest Regulations, 50 with one end  
two Side and two Bottom Doors, Wheels with WROUGHT Bosses,  
large capacity (12 inches longer and 4 inches deeper than usual),  
ready for Lettering. New to Latest Regulations, one end and  
two side doors, sides and ends 3 inch red deals, all inside under-  
frame timbers of English oak; delivery, about 15 per week, com-  
mencing forthwith. 50 End Tip 10-ton Coal Wagons to New Regu-  
lations, equal to new, prompt delivery.

**LOCOMOTIVES.**—One good second-hand Saddle Tank Loco,  
six wheels coupled, ready for instant work, and cheap for cash or  
three years' purchase-lease. 14 inch cylinders, by Avonside Engine  
Company, now near Cardiff.

**RAILS.**—Bridge, 14 to 120 lbs. per yard; Flange, 10 to 100 lbs.  
per yard; Double Head, 30 to 82 lbs. per yard; and Bull Head, 50 to  
96 lbs. per yard.

**SLEEPERS.**—Wood, Iron, and Steel. A quantity of Metre  
Gauge Steel Sleepers for Sale, Cheap. 1400 new Baltic redwood  
sawn rectangulars, 8 feet by 8 inches by 4 inches at 1s. 3d. each net  
f.o.t. Cardiff.

**PORTABLE RAILWAY.**—£9 18s. 9d. per 100 Yards of Rail-  
way (Steel Rail, 14 lbs. per yard, and Iron Sleepers), complete.

**EARTH WAGONS.**—75 side tipping 30-inch gauge, STEEL  
wheels and STEEL axles, £5 each, f.o.t. Cardiff.

**BRICKS.**—Fire and building bricks, also clay.

## PRINTING.

We are prepared to Compose, Stereotype, and Print Papers  
Pamphlets, &c., in the most expeditious manner, and give  
Special Attention to Printing required on the formation of  
New Companies, including:

PROSPECTUSES, DIVIDEND WARRANTS,  
ANNUAL REPORTS, BALANCE-SHEETS,  
DEBENTURE AND SHARE LISTS, &c., &c.

**Every kind of Commercial Printing Executed  
with Dispatch.**

ESTIMATES FREE.

**"THE MINING JOURNAL,"**  
18, FINCH LANE, LONDON, E.C.

**HENRY WIGGIN & CO. (Limited),**  
NICKEL AND COBALT REFINERS,  
MAKERS OF BEST RED LEAD FOR FLINT GLASS  
MANUFACTURERS,  
BIRMINGHAM.

## The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

An Illustrated Record of Mining, Metallurgical, Railway,  
Financial, Industrial, and Engineering Progress.

ESTABLISHED IN 1835.

THE MINING JOURNAL, RAILWAY AND COMMERCIAL  
GAZETTE, published every SATURDAY MORNING, price  
SIXPENCE, is recognised throughout the World as being the oldest,  
most influential, and most widely circulated Journal devoted to the  
interests which it represents. It circulates

### ALL OVER THE WORLD.

Amongst Mine Owners, Capitalists, Investors, Mining, Metallurgical,  
Railway and Mechanical Engineers, Railway Administrators, Manu-  
facturers, &c., &c.

THE MINING JOURNAL, RAILWAY AND COMMERCIAL  
GAZETTE has correspondents and sources of information in almost  
every quarter of the globe. Its policy is absolutely independent;  
its circulation is cosmopolitan; and its literary scope embraces the  
entire field indicated by its title. The International Exhibition of  
Mining and Metallurgy, Crystal Palace, 1890, and the Institution of  
Mining and Metallurgy, London, were initiated and established by  
the efforts of THE MINING JOURNAL.

**TO CORRESPONDENTS.**—Letters on Editorial Matters, or containing  
literary contributions should be addressed to "THE EDITOR." All matter  
intended for insertion must be written on one side of the paper only. The  
return of rejected manuscripts cannot be guaranteed. The Editor invites  
correspondence and items of news or information from readers in all parts  
of the World.

**TO SUBSCRIBERS.**—The Annual Subscription to THE MINING  
JOURNAL, including postage to any part of the United Kingdom, is £1 4s.  
Abroad, £1 8s. payable half-yearly in advance. It can be purchased at all  
Railway Booksellers and Newsagents throughout the United Kingdom for 6d.

**TO ADVERTISERS.**—The following is an abbreviated Scale of Charges for  
Advertising:—Companies' Prospectives, £12 12s. per column, or £20  
per page; Companies' or Legal Announcements, 9s. per line, with a Mini-  
mum charge of 7s. 6d.; Sales by Auction, Publications, For Sale, Wanted,  
&c., &c., 8d. per line with a Minimum charge of 4s.

Displayed (Trade) Advertisements of 2 inches in depth (or more). Single  
Column measure, will be inserted at the following rates:—For 52 inser-  
tions 2s. 6d. per insertion for each inch in depth; for 26 insertions 3s.  
per insertion for each inch in depth; for 13 insertions 3s. 6d. per insertion  
for each inch in depth. Terms for special positions and contracts may be  
had on application.

**ADVERTISEMENTS** (which should in all cases be sent direct to  
THE MANAGER) can now be received for the forthcoming issue  
of THE MINING JOURNAL, RAILWAY AND COMMERCIAL  
GAZETTE, on FRIDAY, at 18, FINCH LANE, E.C., up till 8 p.m., and  
at 3, DORSET BUILDINGS, SALISBURY SQUARE, E.C., until 9 p.m.

\* \* \* THE MINING JOURNAL, is neither controlled, nor in any interest in it  
held or exercised, by any mine owner, speculator or syndicate, and it  
is in no way connected with any share dealing agency. The position  
occupied and the views expressed by it are alike absolutely independent.

Editorial and Advertisement Offices:  
18, FINCH LANE, LONDON, E.C.

Telegraphic and Cablegraphic Address: "TUTWORK, LONDON."  
Codes used: "A.B.C." Moreing's, and "Universal."

### CONTENTS

Of this Number of "The Mining Journal, Railway and  
Commercial Gazette," February 2, 1895.

NEW PATENTS...	11
CONTRACTS OPEN...	121
ANSWERS TO CORRESPONDENTS...	121
DRY CONCENTRATION IN NORTH WALES...	122
SPECIAL CORRESPONDENCE: Colonial and Foreign. Paris Letter...	122
THE ROYAL SCHOOL OF MINES...	124
MEETINGS OF MINING COMPANIES— Austin Gold Mines (Limited)...	125
Graskop: Transvaal Mortgage; Government Stocks...	126
Abbott's Gold; Bechuanaland Exploration...	127
Zapopan Mines...	128
The Matabele Gold Reefs and Estates Company (Limited)	129
MINING IN SPAIN (ASTURIAS)...	129
THE LONDONDEER GOLD MINE...	129
LEADING ARTICLES— The Valuation of Mines...	130
The Royal School of Mines...	131
NOTES AND COMMENTS...	131
THE MINING MARKET...	132
FORTHCOMING MEETINGS...	132
LATEST FROM THE MINES: Cables and Telegrams...	132
MINING NOTES FROM JOHANNESBURG...	133
THE METAL MARKETS— The London Metal Market...	133
"THE MINING JOURNAL" SHARE LIST...	134-135
THE MINERAL WEALTH OF SIBERIA: ITS GOLD PRODUCTION...	135
NEW ISSUES...	135
REPORTS FROM THE MINES...	136
PROVINCIAL SHARE MARKETS...	136
MINING IN CORNWALL AND DEVON...	139
METROPOLITAN MINE...	140
TIN TICKETING...	140
ADVERTISEMENTS—(See Index to Trade Advertisements, p. 113).	

LONDON: FEBRUARY 2 1895.

### THE VALUATION OF MINES.

CASUAL glance back through the numerous prospectuses  
of mining companies which have been issued within the  
last few months would produce in the mind of anyone of  
an enquiring turn some desire to know how the figures given as  
the value of the mine have been arrived at. In many cases they  
have been fixed in a most hap-hazard way, and not in any relation  
to the actual value of the property, but more as an estimate  
of what the vendor believes he can procure from the public.  
Often, indeed, no expert advice is taken on the point either by  
vendor or promoter, especially in times of some slight commercial  
excitement when a temporary demand has sprung up for  
the class of property in question, and consequently the valuation  
is more or less a fictitious one. Two axioms have been laid down  
by the late writer of a well-known book on metalliferous mining,  
and these are (1st) They who take the risk are entitled to the

profits of success; and (2nd) Where nothing has been discovered  
that can be profitably worked there is nothing to pay for. We  
very much fear that these rules have been forgotten in recent  
transactions, and that a good deal has been paid for very little,  
if any, discovery; while sums in five figures have been asked and  
paid for mines, which a few moments of ordinary business  
thought would show, could not at the best ever pay a mining  
profit on more than one-fourth the sum, to say nothing of the  
additional capital required for working them. A few rich finds  
of ore on the phenomenal success of a single mine are taken as a  
basis for supposing that the whole district will be equally fortun-  
ate, and, like the prizes in a lottery, throw a glamour and  
haze over the minds of the people who invest in such under-  
takings from which later on they will probably have a cruel  
awakening.

Let us now consider some of the lines upon which a valuation  
should be conducted. If the mine has already been opened up  
by means of shafts and levels, so that a fair idea of the richness  
of the lode may be arrived at from an examination of it, the  
task is shorn of some of its greater difficulties, and still more  
so is this the case when machinery has been erected for the  
treatment of the ore, of which cargoes have already been shipped.  
In this latter case it is not difficult to arrive at the value of the  
ore per ton or per square yard of stoping, provided that accurate  
accounts have been kept and plans made showing the progress of  
the workings. A rough-and-ready but fairly accurate manner  
in which to get at the average value of the lode or seam, pro-  
vided that there are no faults, is to make a tracing of the under-  
ground workings, cut out from this the portion of ground already  
stoped, and thus of known productiveness, weigh this in a  
chemical scales, and then cut out and weigh the area of  
ground remaining unworked. The answer can then be ob-  
tained by a proportion sum; thus, as the weight of the  
"worked" tracing is to that of the "unworked," so is the weight  
of ore obtained to that remaining in the mine. It is obvious  
that there are many questions which will also influence the  
value of the ore remaining, such as faults, water, ventilation,  
increased depth of workings, and various geological causes  
likely to affect the productiveness of the lode; to which also  
must be added surface conditions, rights of way, and the state of  
the mineral and labour markets. With regard to the machinery,  
its value depends almost entirely upon the mine being worked;  
for the break-up value of the machinery of an abandoned mine is  
a mere fraction of its original cost, and is reduced in some cases  
to practically *nil*. If, however, the mine is in operation or  
about to be put in operation, then the fact that machinery is  
already erected on the spot, and can be utilised, has undoubtedly  
an important bearing upon the value of the mine. The only  
way by means of which a valuation in any way approaching accu-  
racy may be arrived at, is, first of all, to determine upon a  
reasonable and practical output per annum for the length  
of time which, after examination and survey of the mine,  
will, in all probability, be the life of the mine, and from this and  
the average profit which may be expected per ton of ore, arrive  
at the annual income which may fairly be anticipated. The  
question, then, is resolved into one of the purchase of an annuity  
of that amount for a number of years, equal to the estimated  
life of the mine, subject to certain deductions. The one is that  
the capital thus invested shall be repaid at a fixed annual rate,  
so that on the abandonment of the mine the purchaser shall have  
recovered the whole of his capital; and the other, which is more  
difficult to determine, is that the purchaser shall have a liberal  
allowance made as a percentage per annum upon the capital  
invested in order to compensate him for the risks attendant  
upon all mining transactions. Then, also, if the mine is not  
actually in the receipt of dividends the annuity to be derived  
from it must be considered as deferred during the time that the  
mine will be unproductive, or for a period of time equal to that  
required to develop it, and erect the necessary machinery.

The amount of percentage allowed to the purchaser can only  
be fixed by an expert after an examination based on the lines  
we have laid down. If the mine is in a foreign country, and  
especially if the Government of that country is unstable, it is  
evident that a higher percentage should be allowed, and to  
quote from a high authority on the subject—Mr. H. D.  
Hoskold—"if 20 to 25 per cent. per annum be considered as  
the maximum rate allowed upon the purchase of home metal-  
liferous mines, foreign mines should be purchased at least from  
10 to 15 per cent. per annum higher." Upon the above prin-  
ciples let us consider the case of a gold mine estimated to yield  
an annuity of £60,000, after a period of three years' development,  
to last for 40 years. Allowing the purchaser a percentage of  
45 per cent., the present value of £1 would be 7081, and this  
multiplied by £60,000, equals £42,486 as the gross value, from  
which, of course, the cost of opening up the mine must be  
deducted, the result being the actual present value. In the  
above example, the rate allowed for redemption of capital is  
3 per cent., and when we deduct the cost of development and  
machinery from the total amount, we shall arrive at a figure  
very much inferior to sums which are being frequently asked for  
properties of a similar character. If such be the case with pro-  
perties upon which a certain amount of work has been done to  
prove their value, and upon which certain reliable data may be  
based, what can be said as to those properties which are prac-  
tically unexplored, except, perhaps, for a few surface scratchings  
here and there not involving a total cost to the owner exceeding  
a hundred pounds or so? On these, indeed, it is difficult to fix  
any but a problematic value, depending upon the results of  
developments to be made, not by the vendor but by the pur-  
chaser. The only way out of the difficulty seems to us to be in  
allowing the owner liberally for work done in cash, and making  
him share the future risks by taking the balance in stock. In  
either of the cases we have cited, the work of valuation must  
clearly be left to the skilled judgment of the mining engineer,  
and cannot be decided with fairness to all parties by any hap-  
hazard guess.

## THE ROYAL SCHOOL OF MINES.

**S**IMILAR in the distinguished and representative character of its company and in the harmony generally characterising its proceedings, the 22nd annual dinner of the old students of the Royal School of Mines differed from the preceding event in the tone and cast of the speeches. Had the venerable Dean found an opportunity of leaving, for a brief space, his polemical pen, and unbending to the pleasures of the table—which nobody can do more gracefully than he—there would have been an opportunity for him to observe, without forsaking even for a moment the strict scientific method, that man—at least metallurgical man—is occasionally a meditative as well as a laughing animal. The description which would apply to the speeches—taken in bulk—is that of a series of terse and vivid reviews upon the mining industry, each dealing more or less closely with one of its particular phases. Distinguishable from each other in their lines of approach, they were united in a hopeful and sanguine view of the future of English industries. Nor would it be correct to seek for no more substantial basis for this agreement than the gentle optimisms that generally suffuse the banqueting-hall after the removal of dessert. Considered in the cold, hard light of logic and of fact, no less than in the sweet radiance of after-dinner reason, there is a sufficiency of hopeful features about the immediate industrial prospect of this country to justify against an accusation of mere obstinacy anyone who should refuse to become discouraged. To be forewarned is not always to be forearmed, for warning, overdone, may beget despondency, and despondency may be paralytic. Some such reflection as this may have occurred to the Chairman as he coldly deprecated the mood of those who rush "headlong into evil, and see in the present times only a permanent decadence of our trade." His speech was in a lighter strain, and the keynote thus struck was continued in the series of oratorial solos following throughout the evening, occasionally merging into a triumphant optimism. Even those among the company—were there any—who would hesitate to accept fully so pleasing an estimate of the present and so attractive a forecast of the future, must have conceded to the train of reasoning, and the array of facts by which it was supported, a good deal of weight. Their originators, too, were men who have made a life-long study of the subjects, and so were able to speak authoritatively. A glance at the list of guests, which we publish in another column, will show at once that the gathering was no mere chance assemblage of men distinguished by the social habit. Indeed, it may be doubted whether ever during the course of the year, there is a representation of mining more complete than the one annually attained at the dinner of the School of Mines. By the energetic efforts of the honorary secretary, ably seconded by others who are as keenly interested in the work as he, one of the largest of the banqueting halls of the Criterion is, once in a twelvemonth, occupied for a brief space, by the pick of the profession. The author of works in the hand of every metallurgical student sits side by side with a mining engineer who began his career when the world was perceptibly younger than now, and converses over the table affably enough with a neophyte, blushing with the honours of a recently-won Associateship, and hoping some day to take Rio Tinto in hand and show the old staggers a thing or two. The importance of the fact and its beneficial influence it would not be easy to exaggerate, and there are few sincerely interested in the prosperity of the industry who will not sincerely hope that so useful an institution may flourish long.

## NOTES AND COMMENTS.

DR. JAMESON addressed a most distinguished audience at the Imperial Institute on Monday night, when he delivered an instructive and interesting lecture on "South Africa." The Prince of Wales occupied the chair. As the annual meeting of the Chartered Company was held so recently, at which Mr. Cecil Rhodes spoke at great length on the present and future of the country governed by the British South Africa Company, it was not to be expected that Dr. Jameson could tell us much more than we already know. He, himself, clearly saw the difficulty of avoiding ground already passed over; but successfully got over it by taking us back right to the beginning, and then pressing forward on the outskirts. We are not, he reminded us, the pioneers of the vast region of which we are now the masters. The Dutch were the earliest settlers. It is more than 300 years ago when some of the best families of France and Holland, compelled to emigrate, settled down on that narrow strip of land between Table Mountain and the sea. Their old, square towers are still to be seen on the mountain slope, defining the extent of the small colony, and bearing witness to the hard fight they maintained for many years against the native inhabitants. Later on, the French Huguenots imported their vines; a trade grew up with the Dutch East Indies and with Ceylon, and in 1760 the first Dutch Governor—Van Riebeck—landed from Holland and assumed administrative control. Fifty years later—in 1806—during the Napoleonic wars, Holland being allied with Napoleon, the then Dutch Governor capitulated to three English men-of-war, and what had now been renamed the Cape of Good Hope was transferred to the English Crown, "under whose protecting flag, let us hope, it will always remain," added Dr. Jameson, which expression of patriotism was naturally received with tremendous applause.

Bur, after all, it is the present condition of the country and the future which interest us most, and here Dr. Jameson was compelled to go over the ground which was covered by Mr. Cecil Rhodes. He strongly emphasised the fact that in Rhodesia we have a country nearly as large as Europe—a liveable country, where white men and women can live, and white children can be

reared in health and vigour. Above all, he reiterated that it was not only highly mineralised, but highly payable. But he took care to say—as he said likewise at the Chartered Company's meeting—that this was only his own opinion, but he asked his audience to bear in mind that that opinion was based on many years of residence, and that, especially with regard to minerals, he has had the advantage of having had personal communication with a well-known expert. Then, again, it has been proved that iron is almost universally distributed throughout the country. Recently, south of the Zambesi, several coal beds have been discovered spread over a large area, and, "therefore," Dr. Jameson affirmed, "we have in Rhodesia one of the greatest factors of England's present wealth as a guarantee for its future prosperity—the co-existence of coal and iron side by side." We can not only understand Dr. Jameson's enthusiasm, but can fully enter into it, for there is little doubt that in the future England will be greatly enriched and benefitted by the opening out and peaceful habitation of this vast tract of country.

THE third general annual report by the Board of Trade, under section 29 of the Companies (Winding-up) Act, 1890, contains some very valuable suggestions and recommendations. Sir Courtenay Boyle, on behalf of the Board of Trade, points out that nearly two-thirds of all the companies formed in 1893 failed to establish themselves as permanent enterprises. But the experience of the ten years—1884-1893—shows that out of the new companies registered only 43.3 per cent. remain in existence for a reasonable period. The capital of the companies wound up in 1893 amounted to £41,448,000, and the estimate of deficiencies, based on the statement of affairs in the case of compulsory liquidations, is stated at £6,081,000. So far as regards the 16 companies in which winding-up proceedings have been taken in this country, all except five have now been reconstructed, and have resumed business on conditions which assume that they will involve no ultimate loss to the creditors, and that the nominal loss of capital will not much exceed a million sterling. The report remarks that while, with a few exceptions, nothing has been disclosed in the course of the temporary suspensions indicating misconduct on the part of those responsible for the management and direction of the companies referred to, their suspension has been, in the main, due rather to a neglect of those prudential considerations which ought to regulate the use of credit, than to actual losses of capital.

THE expediency of attempting to remedy some of the more prominent evils by legislation has been pressed upon the Department, and it appears to be a matter for consideration whether the time has not arrived for attempting something in this direction. Many of the evils complained of appear to arise from lack of due precaution on the part of the investing public, the want of which cannot be supplied by the provisions of an Act of Parliament. On the other hand, it cannot be denied that abuses have arisen which were not foreseen when the Act of 1862 was passed, and have, therefore, not been adequately guarded against. The conclusion arrived at by Sir Courtenay Boyle is that "it would appear to be necessary that a serious attempt should be made to deal by legislation with some of the admitted evils of the present system in the interests both of the investing and of the trading public, if it is not to become seriously discredited." The suggestions made on behalf of the Board of Trade comprise the following points:—A compliance with definite requirements as to subscription and payment of capital; disclosure of fuller information as to previous history of the property to be acquired; securing a substantial interest in the company on the part of its first subscribers; fuller particulars as to directors and their personal interest; prevention of transfer of insolvent businesses; limitation of mortgage and borrowing powers; more efficient audit and publication of balance-sheets; and, finally, the strengthening of the criminal law in cases of fraud. To give final shape to these provisions, the Department, it is stated, should have the advice of carefully-selected experts chosen from representatives of the Bench, the legal profession, accountants, and others having experience in the promotion and management of companies.

THE Science and Art Department of the Committee of Council on Education have introduced some important modifications of the rules for organised science schools. The work of these schools may be carried on either in day classes or in evening classes, and no organised science school will be recognised as such unless it has at least twenty students at its formation, nor will it continue to be recognised beyond two years after its formation unless it has a fair proportion of students taking the advanced course. The most important of the new features is the introduction of payments on inspection, instead of payments on results, for by far the larger part of the instruction given. This modification, which applies to 120 science schools in the United Kingdom, has only become possible since the recent appointment by Mr. Acland of a staff of Science and Art Inspectors. This will, without doubt, lead to a more thorough grounding in place of the "cramming" that has, we fear, largely prevailed. Provision is further made for a certain amount of literary instruction being given whilst the student is pursuing his science curriculum; greater latitude is given to the teacher in the selection of a syllabus for the first two years of a student's course; a choice of advanced courses is given; and practical instruction must be given in the science subjects simultaneously with the theoretical instruction. Under these rules the training will surely vastly improve, and with it the demand for instruction increase.

THE Lord Chief Justice, in a recent case, observed that it seemed that the depth of the gullibility of the British public had yet to be plumbed. Judging from the excitement caused in legal circles, and in the columns of our daily contemporaries,

by the grave charge brought against the Lord Chancellor by the *Law Journal* newspaper last Saturday, that paper has made a bold attempt to reach that depth. The gravity of the charge, its unprecedented character, and its very unlikelihood, couple with the nervous susceptibility of the public mind at the present moment as regards Limited Liability companies, enabled the *Law Journal* to obtain momentary credence for a story which, at any other time, would have been rejected as monstrous and absurd by every reasoning creature until established by the clearest possible proof. The allegation made was "that the companies' winding-up business is intended to be permanently transferred by the Lord Chancellor from Mr. Justice Williams to Mr. Justice Romer. The unsatisfactory state of business in the Queen's Bench is the pretext assigned for this contemplated change. The true reason, however, is very different. It is the annoyance given in high quarters by the firm, fearless, and admirable manner in which Mr. Justice Williams discharged his duty in the New Zealand Loan and Mercantile Agency Company case, and the fear that he may, in other pending matters, act with equal courage and decision." It is somewhat interesting to follow the effect of a bold accusation against a high personage, such as the Lord Chancellor of England, holding what may be called a national position, and it is satisfactory to one's feeling patriotism when we find that the unimpeachable character and integrity of the occupant is sufficient in itself to repel such an attack, which, in other circumstances, would have risen into a hue and cry.

To those well informed it is known that Mr. Justice Vaughan Williams has done his duty in the same manner as the nation and the world expects of every English judge who possesses the firmness and ability for the post. Being, by the principles of our constitution, practically irremovable, he administers justice without fear, and being imbued with the high traditions of the bar, without favour. Having a firm mind and clear perception, and withal being indefatigable, he has administered the law and practice regarding winding-up companies as he found the recent amendments in the law enabled him, and the rich, the powerful, and the influential coming before him met, and will meet, with the like application of that law as those in a lower scale of society. The reputation of our English bench is fortunately such that the profession knows, and the public believe, that a transfer of Mr. Justice Williams's duties to Mr. Justice Romer would in this make no difference, unless it be he has less strength of character or power of perception or perseverance. In such a suggestion really lies the unkindness of the insinuation of the *Law Journal*. The fact, however, is that Mr. Justice Vaughan Williams remains the judge concerned with the winding-up of companies, but that while he is engaged away from town as Judge of the Queen's Bench Division on circuit, the work of winding-up companies cannot be wholly stopped, and, therefore, a transfer has been made to Mr. Justice Romer, as it was last year to another judge for the like reason.

THE Chairman's testimony at the annual meeting of the shareholders in the Zapopan Mines, supplemented by that of Mr. Woodyatt, will convince nearly everyone that the property owned by the company is a highly valuable one. The testimony of the Government Inspector of Mines will confirm the impression. In speaking of the southern portion, he says—"There is an immense lode running through it; from the surface of this lode the quartz has yielded 18 dwt. of gold to the ton." As to the northern portion, he says—"A considerable amount of work has been done; five shafts have been sunk, averaging in depth 90 to 100 feet; the whole of them are within a distance of 300 feet on the line of lode. I consider this a good property, and one which, when well opened up, should give payable returns." Frequent assays have been made, amounting to the same result. Figures like the following speak for themselves:—"70 tons, 140 ounces of gold; 174 tons, 410 ounces; 14½ tons, 40½ ounces; 10 tons, 12½ ounces; 66 tons, 40 ounces; 174 tons, 410 ounces; 1587 tons, 1157 ounces; 1606 tons, 803 ounces." From this it would appear that the shareholders will not have long to wait before getting results of the most tangible kind.

MR. W. C. CRONEMEYER, until lately the President of the American Tin-Plate Manufacturers' Association, calculates that if all the tin-plates now imported from Wales were manufactured in America, employment would be given to 40,000 operatives. These, with their families, would, he estimates, support, including merchants and all who furnish them with supplies, a population of 240,000 people. Here are some facts worthy of the notice of our Welsh manufacturers. As we showed last week, the American industry as at present established is understood to be engaging the energies of 10,000 workpeople, so that the States are evidently proceeding in the direction Mr. Cronemeyer sketches. Further, American producers are now making additional efforts to supply the home market. The American tin-plate strike being over, intelligence is forthcoming of the laying down of additional mills in various parts of the Pennsylvania, Indiana, and Ohio regions, and some of these claim to have the heaviest machinery ever placed in a tin-plate mill. One important factor which is assisting native manufacture in America is, that a few years since, steel billets were selling in the States at £6 5s. per ton. They are now to be had at £3 10s. to £3 11s. per ton—the lowest figures ever known.

A NEW era of mining is, on good authority, said to be now commencing in British Columbia generally, and in the euphoniously named district of Cariboo in particular. The tracing out of the old river channels and beds—a work of interest and profit now being actively pursued—is said to be opening up a wide sphere of operations for the placer miner. So far the explorations have been uniformly successful. Rich areas of auriferous deposits have been cut through with the natural result

of stimulating enterprise and awakening the energy of the mining community of the Province. In this connection a good deal is owing to Mr. Ross E. Browne, who, working in California, has developed a useful system of laying open the courses of prehistoric rivers. A special instance of his skill, practically and successfully applied, is quoted in the discovery and tracing out of the bed of a Pliocene river for a considerable distance. In view of the fact that the inhabitants of the locality are settling to work in a business-like manner to turn this latest departure to the highest commercial account, there need be no great doubt as to ultimate results.

## THE MINING MARKET.

FRIDAY EVENING.

**A protracted settlement.** — Rand shares quieter. — West Australians active. — A favourable outlook at the close.

**B**USINESS during this week has been a good deal interfered with by the progress of a heavy account, and now that this is concluded, there are indications that a favourable period of business is now opening. Attention was at the commencement of the week almost wholly directed to the carry-over. Contango rates were of various degrees of lightness and severity. On gold descriptions from 6 to 8 per cent. was offered and accepted. As compared with those of the last carry-over the prices were somewhat lower, the principal exceptions to this rule being De Beers, Orions, Spes Bona, and in the Australian section Hampton Lands and Plains, Bayleys, White Feathers, and Concessions. Whatever business was transacted for the new account fell into more favourable grooves, the outlook for the new account being a decidedly satisfactory one. The continuation of the adjustment interfered to some extent on Tuesday with the transactions for the new account, and, diamonds apart, a flat tone ruled all day in South African shares. In the two chief diamond shares there was considerable buoyancy. A quiet but steady tone prevailed in the West Australian section. Miscellaneous shares were not so favourably affected, but there were hopeful spots in the market, and this tendency appeared to be spreading. There was the same story so far as South Africans were concerned throughout Wednesday. The progress of the settlement was not yet concluded, and this occasioned some tendency to interfere with ordinary business. Little outward stimulus was received by Continental or other buying, and it seemed at one time that the day was to end weakly. Just before the close, however, a better state of things set in, and there was a distinctly harder tone of business. A fair amount of business was transacted in the West Australian market, but miscellaneous shares were dull. In view of the fact that Thursday was the day for the final adjustment of a very long account, business in the South African and other markets, though necessarily somewhat restricted, was of a very favourable character. A number of shrinkages occurred in the gold section, but these were not of sufficient magnitude to warrant the supposition that they were due to anything but the absence of support owing to causes quite unconnected with the intrinsic values of the shares affected. The activity in the West Australian market has been somewhat pronounced, and movements have, on the whole, been of a favourable character. A heavy settlement thus concluded, there are indications that the progress of the next account will mark a highly favourable business period.

### British Mines.

There has not been much business in Cornish shares this week. The prices have been steady, without any disposition to buy or sell. Carn Breas and Cook's Kitchens have been enquired for, but with a somewhat improved prospect holders have not been inclined to sell. Dolcoaths have been steady, about 45s.; but at this not many shares can be secured. Killifreths have been steady at 20s. The mine is looking fairly well, but with the low price for tin it is not likely that any profit can be shown at the next meeting. Tincrofts are firm at 5s. West Kitty at about 5s., were scarce. A few Wheal Grenvilles have changed hands at about 11s.—Risen: Dolcoath, 10s.; Killifreth, 2s. 6d.; South Condurrow, 5s.; Tincroft, 15s.; West Kitty, 5s.—Fallen: Polberro, 2s. 6d.

### South African Shares.

As soon as the pressure of business in the carry-over exhibited a tendency to lighten, some of the dealers turned their attention to the new account, and a decided turn for the better manifested itself. Primroses went up to 6s., Glencairns hardened to 3s., while Knights improved to 3s. Ferreiras hardened to 15s., Simmers to 11s. Wolhuters were again in demand, and advanced to 5s. Heriots were bid for and rose to 8s. Jubilees improved to 8s., Croesus Deep went up to 2s. Eastleigh strengthened to over 1s., and rises occurred in Stanhope, Steyn Estate, and Princess. Some high-priced shares registered declines, including Rand Mines, Crown Reef, Transvaal Gold, Meyer and Charlton, Kleinfontein, Chimes, and Village. Champ d'Or Deep were rather off. De Beers advanced to 19s., while Jagers were quoted at 17s. South African shares were not so lively on Tuesday. Some emphatic exceptions to this rule, were, however, to be met with in some directions. Orions were especially in demand, and rose 1s. to 3s. Knights steadily picked up, and hardened to 3s., and improvements occurred in Cities, Crowns, Heriots, Simmers, Transvaals, and Afrikanders. Sutherland Reef were bought by the usual clique, and strengthened to 2s. 6d. There were also inquiries for Pigg's Peak, North Sheba, and African Alluvial. Rand Mines led the downward movement, being 1s. down at 20s. De Beers and Jagers were buoyant, the former being strongly in demand at 19s., and the latter at 18s. Wednesday's tone in this market was not, on the whole, a favourable one. Dulness spread throughout the whole section, some few exceptions apart. Croesus were firm, but Croesus Deep to some extent reacted. Primrose, Kimberley-Roodepoort, and Spes Bona kept firm. Langlaagte Royal were rather off. Langlaagte Estate receded to 4s. Block "B" to 16s. 6d., and Randfontein to 23s. East Rands were flat, closing as low as 48s. 8d. Rand Mines were 1s. down at 20s. Modders fell 1s. to 8s.; and there were relapses of 1s. in City and Suburban and Ferreira. Van Ryn, Henry Nourse, and Wemmer were each 1s. lower, and there were also declines in Wolhuter, Geldenhuis Deep, Geldenhuis Estate, George Goch, Consolidated Deep, Heriot, Jubilee, Jagers, Kleinfontein, Knight, Meyer and Charlton, and others. Among Land shares Chartered, which had been dull all day, rallied at the close to 42s. 9d. A fairly firm tone prevailed in the South African market on Thursday. Ferreiras and Geldenhuis Main Reef were again strong, but Geldenhuis Estate had been flat. Geldenhuis Deep were again steady at 6s. 1d. Rand Mines were moderately bought, and recovered to 20s. Modders and Van Ryns were better, and George Goch hardened to 2s. Spes Bona were dealt in at 32s. Nigel

were 1s. down at 4s., and Henry Nourse receded 1s. Relapses of 1s. have occurred in Afrikander, Clever Estate, Croesus, Kimberley-Roodepoort, Metropolitan, Gold Fields of Mashonaland, Ginsburg, May, Pigg's Peak, and Salisbury. Among Land shares, Chartered receded to 41s. 9d.

Gold and Land shares have remained fairly steady during today, but as to the former there is little of a special nature to chronicle. Among Land shares Chartered have absorbed the greatest amount of attention. After vacillating a good deal they close at 43s.

Risen: Agnes Block, 2s.; African Coal, 6d.; De Beers, 10s.; Eastleigh, 2s. 6d.; Goldenhuis Main, 6d.; Graskop, 3d.; Griqualand, 2s. 6d.; Heriot (allowing for dividend), 4s.; Jubilee (allowing for dividend), 3s. 6d.; Meyer (allowing for dividend), 1s.; New Croesus, 1s. 3d.; New Jagers, 2s. 6d.; New Sheba, 3d.; Orange, 5s.; Orion, 2s. 6d.; Pardy, 12s. 6d.; Steyne, 1s. 3d.; Sutherland Reef, 1s. 6d.; Transvaal Coal, 3s.; Transvaal Land, United Roodepoort (allowing for call), 2s.; Witwatersrand Knight's, 1s. 3d.—Fallen: African Consolidated Land, 6d.; African Gold Concession, 1s.; Alexandra, 6d.; Aurora, 1s.; Balkis Eersteling, 3d.; Balkis Land, 6d.; Bantjes, 3s. 9d.; Barrett, 1s.; Bechuanaland, 6d.; Block B, 1s. 6d.; Booyens, 5s.; Buffelsdoorn, 1s. 3d.; Champ d'Or (allowing for dividend), 3s. 6d.; Champ d'Or Deep, 3s. 6d.; Chartered, 1s. 6d.; City and Suburban, 2s. 6d.; Clever, 2s. 6d.; Consolidated Deep, 2s. 6d.; Consolidated Gold Fields, 2s. 6d.; Croesus Deep, 6s. 3d.; East Rand, 3s. 6d.; Ferreira, 10s.; Frank Johnson, 6d.; Geldenhuis Deep, 5s.; Goldenhuis Estate, 2s. 6d.; Goldenhuis Southern, 3s. 6d.; George Goch, 1s. 3d.; Ginsberg, 1s. 6d.; Glencairn, 1s. 3d.; Gold Fields Deep, 2s. 6d.; Grahamstown, 6d.; Gold Fields of Mashonaland, 1s. 3d.; Harmony Preference, 1s.; Henry Nourse, 2s. 6d.; Johannesburg Investment, 5s.; Johannesburg Water, 6d.; Kleinfontein (allowing for dividend), 5s.; Klerksdorp, 9d.; Langlaagte, 5s.; Langlaagte Royal, 2s. 6d.; Liendale, 1s.; Lisbon-Berlyn, 3d.; Luipaard's Vlei, 1s.; Masi Kessi, 6s.; Metropolitan, 2s. 6d.; Modderfontein, 10s.; New Primrose (allowing for dividend), 1s.; Nigel (allowing for dividend), 10s. 6d.; Northern Transvaal, 6d.; Nourse Deep, 27s. 6d.; Ocean, 5s.; Paarl, 1s.; Pigg's Peak, 1s. 6d.; Potchefstroom, 1s.; President Land, 6s.; Randfontein, 2s.; Rand Mines, 25s.; Rietfontein, 10s.; Robinson (allowing for dividend), 2s. 6d.; Roodepoort (Kimberley), 3s. 9d.; Sheba, 6d.; Simmer and Jack, 2s. 6d.; South African Gold Trust (allowing for dividend), 1s. 6d.; South African Trust and Finance, 6s.; Southern Land (fully-paid), 1s.; Spes Bona, 4s.; Stanhope, 2s. 6d.; Transvaal Eersteling, 6d.; Transvaal Exploration, 5s.; United Langlaagte, 6s. 3d.; Van Ryn, 7s. 6d.; Village Main Reef, 2s. 6d.; Wemmer, 7s. 6d.; Wolhuter, 7s. 6d.; Worcester (allowing for dividend), 1s.; Zambesi, 2s. 6d.

### Miscellaneous Shares.

Among West Australian shares Londonderry were in demand, the price being again 1s. higher at 17s. prem. Golconda and Hannan's Brown Hill each gained 1s., and Blackett's Claim were 1s. up at 17s. Bayley's Reward, however, closed 1s. lower at 13s. 3d.; nor were Cumberland Gold quite so firm, and Australian Mining also finished a little lower. Among Indians, Mysore fell 1s. to 21s., Mysore Reefs were down to 5s., Mysore West to 14s. 3d., and Mysore-Wynsod to 13s. 3d. On Tuesday West Australians were steady in tone. Londonderrys were the feature at 17s. buyers. Hampton Plains, Mawsons, Kinsellas, Goldcondas, and Boulders were in demand, and rose slightly. Bayleys, on the other hand, remained flat at a relapse to 12s. 9d. Elsewhere there was a quick recovery in Broken Hill Proprietary, while Cumberland Gold, Day Dawn Block, Victory, Dawn Dawn P.C., and Australian Broken Hill closed a little lower. Indian shares were generally duller, Mysore, Nundydroog, Champion Reef, and the two Oregums having been offered. On Wednesday, West Australians were fairly active, and Hampton Lands moved up another 1s., making the price 3s. Exploration were also 1s. higher at 17s. Bayley's Reward, however, again fell 6d., to 12s. 3d., and Great Boulder (fully paid) were flat at a loss of 6d. to 12s. In the Miscellaneous shares Montana were flat, and fell 6d. to 10s. 6d., but De Lamar improved 1s. to 26s. 6d., and St. John del Rey recovered 6d. to 27s. Champion Reef fell to 3s. 6d., Holcomb Valley to 2s., and Mysore Wynsod to 13s. R'o Tinto were very weak, and the last price of 18s. was 1s. down. On Thursday Londonderry registered a rise of 1s. to 2s. premium bid. Hampton Lands were firm at 3s., and Hampton Plains changed hands at 17s. Bayley's Reward were rather off, Mawson's Reward fell 1s. to 17s., and Austin were sold at 1s.

West Australians have been active and firm to day. Hampton Plains, Hampton Land, and West Australian Gold Fields were high in favour and have closed better. In other directions Burma Ruby, upon a sudden demand, have risen to 11s. buyers, while Indian shares have remained very quiet.

Risen: Broken Hill Proprietary, 5s.; Caratal, 3d.; De Lamar, (allow dividend), 6d.; Golden Feather, 6d.; Harquahala, 6d.; Liners, 10s.; Nine Reefs, 6d.; Oregum, 1s. 3d.; Postarena, 6d.; Waihi, 7s. 6d.; Wentworth Priority (allow dividend), 1s.; Yerrakonda, 3d.—Fallen: Australasian, 1s.; Australian Broken Hill, 3d.; Balaghat, 3d.; Brilliant St. George, 9d.; Callao Bis, 3d.; Cape, 2s. 6d.; Champion Reef, 2s. 6d.; Colon, 6d.; Copiapo, 1s. 3d.; Cumberland, 1s. 3d.; Day Dawn, 6d.; Day Dawn P.C., 3d.; Dickens Custer, 3d.; Eaglehawk, 9d.; Elkhorn, 6d.; Emma, 3d.; Golden Gate (Australian), 1s. 3d.; Holcomb, 3d.; Idaho, 6d.; Kobooga, 3d.; Kangarilla, 2s. 6d.; Kapanga, 1s.; La Plata, 3d.; Libiela, 2s. 6d.; Macato, 6d.; Mason, 2s. 6d.; Mill's Day Dawn, 1s. 3d.; Montana, 1s.; Mosman, 3d.; Mysore Harnhalli, 3d.; Mysore Reefs, 3d.; New Queen, 3d.; Poorman, 3d.; Rio Tinto, 17s. 6d.; St. John Del Roy, 6d.; Tolima B, 5s.; Victory, 1s. 6d.; West Argentine, 3d.

### Australian.

Risen: Hampton Land, 5s.; West Australian Exploration, 10s.; West Australian Gold Fields, 1s. 3d.; Zapapan, 3d.—Fallen: Austin, 1s. 3d.; Bayley's Reward, 2s.; Great Boulder, 2s.; Lindsey, 1s. 3d.; West Australian Mining, 6d.; West Mallina, 6d.

## FORTHCOMING MEETINGS.

\* We shall be obliged if Secretaries or other Officials of Mining, Railway and other Companies will be good enough to advise us as early as possible of the date, time and place of their forthcoming meetings whether statutory, semi-annual, annual, general or extraordinary, confirmatory or adjourned — in order that particulars may be announced for the benefit of our subscribers and more particularly our country readers. Brief notes, reports and other matter to be submitted at such meetings should, where possible, accompany the intimations of the meetings sent.

Name of Company.	Date.	Time.	Place.
Premier Concessions of Mozambique .....	Feb. 5	12 noon	Winchester Ho.
Hampton Plains Estates .....	Feb. 4	2.0 p.m.	Winchester Ho.
Lady Mary Amalgamated Gold Mines .....	Feb. 5	12 noon	Winchester Ho.
Big Blow Gold Mines .....	Feb. 6	12.30 p.m.	Winchester Ho.
Argentine Southern Land Company .....	Feb. 7	2.0 p.m.	Winchester Ho.
Hannan's Reward Gold Mining Company .....	Feb. 7	3.0 p.m.	Winchester Ho.
McCulloch Coolgardie Gold .....	Feb. 7	2.0 p.m.	Winchester Ho.

## LATEST FROM THE MINES.

### CABLEGRAMS AND TELEGRAMS.

**ALADDIN'S LAMP.**—The following cablegram has been received from the mine:—"Five weeks' crushing, 380 tons of ore, yielding 1800 ounces of gold. Have not yet cut the vein on the contact on the 600 feet level. We have been milling ore from the 500 feet level. Ball mill has been stopped eight days for repairs to engine."

**BAKER'S CREEK.**—Result of crushing for fortnight ended January 26, 680 ounces retorted gold.

**BAYLEY'S REWARD CLAIM.**—The following cable, dated the 23rd instant, has to-day been received by this company's London office from its head office at Melbourne:—"Week's run 362 ounces 148 tons."

**BAYLEY'S REWARD.**—The following cable, dated the 30th ult., has been received by this company's London office, from its head office at Melbourne:—"Week's run, 220 ounces, 142 tons."

**BIG BLOW.**—The following cablegram has been received from the manager:—"The amount of ore in sight to 10 feet below surface is 80,000 tons, but to 100 feet deep it is unlimited. I estimate its average value at 2 ounces per ton. There are 500 tons already on the dump."

**BRILLIANT BLOCK.**—The following cablegram has been received from Charters Towers:—"Have crushed during the month 1924 tons of quartz for a yield of 1619 ounces of gold. The profit on the run is £2400. Have declared the usual monthly dividend of 6d. per share, payable on Thursday, February 7." The approximate value of this return is £5580.

**BRITISH BROKEN HILL PROPRIETARY.**—For the week ending the 31st ult. 9088 tons of ore were treated, yielding 797 tons of lead containing 192,648 ounces of silver, also 1272 tons treated by amalgamating and leaching plants, producing 12,547 ounces silver. The price of the shares in Melbourne is £1 19s. 6d. buyers.

**BROKEN HILL PROPRIETARY.**—For the week ended January 24, 9181 tons of ore were treated, yielding 765 tons of lead containing 208,839 ounces silver; also 1154 tons treated by amalgamating and leaching plants, producing 15,910 ounces silver.

**BROKEN HILL PROPRIETARY.**—A cablegram from the head office in Melbourne, has been received, reporting that the general meeting has been held, and passed off satisfactorily, and that Messrs. H. C. E. Muecke and William Knox have been re-elected as directors; also that the usual dividend of 1s. per share has been declared, payable on February 20, the books for which will be made up on the morning of the 6th inst.

**BUFFELSDOORN.**—Intelligence has been received by cable to the effect that the amalgamation of the Buffelsdoorn Estate and the Western District Estates was resolved upon unanimously, at a meeting of both companies, held in Johannesburg, on Wednesday. Proper notification as to applications for the new issue of 50,000 shares in the amalgamated company will shortly be made. We are informed that the Johannesburg Consolidated Investment Company (Limited) has been appointed London agents to the Buffelsdoorn Estate and Gold Mining Company (Limited), and that in future all transfer business will be executed by them at their offices.

**BURMA RUBY MINES.**—The returns received by telegram since 18th December last are as follows:—For the fortnight ending 2nd January 2500 loads washed, producing rubies valued at Rs. 26,000; for the fortnight ending 16th January 3200 loads washed, producing rubies valued at Rs. 10,000; for the fortnight ending 31st January 38000 loads washed, producing rubies valued at Rs. 1,15,000.

**DAY DAWN BLOCK AND WYNDHAM.**—The board has received the following cablegram from the general manager at Charters Towers, giving the result of the crushing for the fortnight ending 26th ult.:—"Tons crushed, 550; yield of gold, 378 ounces; approximate value, £1300; fortnight's expenses, £1000.

**DAY DAWN P.C.**—The following cablegram has been received from the manager at Charters Towers, giving the result of this company's crushing for the fortnight ended January 28, viz.:—"No. 1 shaft, 48 tons 38 ounces; No. 3 shaft, 135 tons 190 ounces. Mine is looking better this week. We think returns likely to improve."

**ELKHORN.**—Bullion produced in the mill for the week ended January 20, 8100 ounces.

**EMERALD.**—A telegram has been received announcing crushing of 90 tons, yielding 142 ounces of gold.

**GREAT FINGALL REEFS.**—The following cable has been received from Mr. W. R. Wilson:—"Have sunk 42 feet on the 9 foot lode, average assay at present 1 ounce to the ton; daily improving. Transfer of leases have all been signed."

**HAURAKI.**—The directors have received the following telegram from the manager, viz.:—"The No. 2 reef is improving. On the No. 3 reef the developments promise well. Tributaries have crushed 25 tons of ore, which have yielded 360 ounces of gold. We have struck very rich ore in the 100 feet level, also rich ore going down in floor. The profit this month will be large. Will continue sinking in the course of a few days."

**ISLE OF MAN.**—The secretary sold on Tuesday 100 tons of this company's ore at £8 3s. 6d. per ton.

**KAPANGA.**—The directors have received the following telegram from the manager, viz.:—"The 800 feet level has been 23 feet during the week."

**KING SOLOMON'S MINES.**—A cablegram received yesterday says:—"Solomon adjacent location to the east struck a rich body of ore 70 feet. Have commenced driving; expect to strike reef.—Read."

**LAKE VIEW AND BOULDER EAST.**—Mr. Samuel James, of 3, Copthall Chambers, E.C., has received the following cablegram, dated Adelaide, the 30th ult.:—"Lake View and Boulder East crushed 60 tons, which yielded 290 ounces of gold."

**LA YESCA.**—Captain Michell has cabled:—"Hope shortly to strike the (gold) vein. Assays 300 to 350 ounces of silver to the ton. 95 to 100 ounces adjoining level."

**LOWER ROODE**

shipped, 1493 tons; estimated value, £17,000; mine expenses, £12,220. Output December month—Ore shipped, 150 cartloads (1600 tons); value not yet ascertained. Railroad—During January month we have shipped 21 cars of ore. The railroad has been snowed up from the 4th to 14th and from 16th inst."

NEW ST. AUGUSTINE.—Copy of cablegram received from the mine:—"Fortnight's washing, 1300 loads, 135 carats. Output restricted whilst making alterations in hauling gear."

NORTH SHEBA GOLD AND EXPLORATION.—The manager reports: "Work is in full operation, and I consider the mines have a great future."

ROSE DEEP.—The Exploration Company (Limited), as London agent of the Rose Deep (Limited), has received the following cable:—"Rose Deep No. 2 shaft, 670 feet cut into reef. Samples from 12 inches assayed 8½ ounces."

SOUTHERN GELDENHUIS.—A cablegram has just been received from the manager at the mines to the following effect:—"Working rich quartz. I expect results will be very satisfactory; will know next Monday. Neighbouring mine showing 4 ounces per ton."

STRAITS DEVELOPMENT.—The company has received a telegram from the Chairman, Mr. E. Berdoe-Wilkinson, Singapore, under date January 31, to the effect that a large reef has been discovered in the Passoh property. Its value has yet to be determined.

TOLIMA.—Frias estimated November returns: 150 tons silver valued at 29d. per ounce, £6435 14s. 5d.; cost £4072 8s. 2d.; profit £2363 6s. 3d.

UNITED MEXICAN.—The directors have received the following telegram:—"San Cayetano—Gross returns for week ended January 19, \$750; expenses, \$1220; loss \$470. El Cubo—This week joined next week. Technical difficulties inside which continue no longer."

UNITED PIONEER GOLD.—A cablegram has been received, from the manager at the mines, stating that a trial treatment by cyanide process of 250 tons of tailings belonging to the tributaries of the above company produced 50 ounces troy."

VICTORIA GOLD MINING ASSOCIATION.—The following crushing (3 weeks) has been cabled:—"603 tons crushed yielded 689 ounces gold."

VICTORY.—Messrs. A. Durand and Co., 32, Gresham-street, London, the London agents, have received the following cablegram from the Victory (Charters Towers), Gold Mining Company's head office in Sydney, dated January 24:—"Crushing from No. 1 shaft, 49 tons for 45 ounces; crushing from No. 2 shaft 269 tons for 213 ounces; total 318 tons for 258 ounces of gold."

WASSAU (Gold Coast).—The produce of the mine for the month of November last realised £1353 3s. 10d., being 347½ ounces standard. The mill worked 9 days 3 hours, and crushed 345½ tons of ore, giving a yield of 1 ounce standard per ton. Cablegrams have since been received advising the remittance for last month as 208 ounces bullion, and a yield of 18 dwts. per ton.

WHITE FEATHER UNITED GOLD MINES.—The property has been transferred to the company.

## MINING NOTES FROM JOHANNESBURG.

By H. BUSH, M.E.

(Cabled Weekly).

### Champ d'Or Deep.

The rich Champ d'Or central section shoot should be intersected about next June. The returns have been disappointing, and came as much a surprise to the manager and directors as to the general public. Within a few days after crushing had commenced it was seen that the ore was not equal to more than a few pennyweights to the ton, although on the assay plan it was showing a value of nearly 1 ounce. Upon my ascertaining these facts, I immediately cabled that the mine was looking bad, and in this I was perfectly justified, as the ore at grass and developed was supposed to have a value of nearly 1 ounce to the ton, according to assays shown on the plan. In no instance have I heard of any other mine where the assay plan has proved wrong. I was quite right in assuming that of the Champ Deep to be correct. However, Mr. Hall, the manager, has since informed me that he has had it re-assayed right across the face, and its average is only 2 dwts. 5 grains, so that a deal of picking has now to be done, and the results are now only equal to 6 dwts. Had the official plan been correct, then my previous statements would have been borne out. I might also say that my information has been in advance of any other, and, although the discrepancy in my opinions changed so quickly, it was decidedly warranted by the change of circumstances. The borrowing powers have been increased, and the indebtedness now reaches the respectable total of £110,000. For January the returns all told cannot exceed 1800 ounces, and up to June they will not average this. 30 stamps will never be able to pass dividends on the vast capital, and the only possible chance is now in the striking of the Champ d'Or reef; meanwhile, the shares at present prices are decidedly inflated.

### Spec Bona.

This mine has just started work again under the management of Mr. Johnson. Rich ore lately found on the George Goch, adjoining on the east, is undoubtedly dipping directly into this property.

### Luipaard's Vlei.

There is very little being done on this property, although the reef running through it is decidedly payable. The 10 stamps running are quite inadequate, and there is no earthly reason why exploitation should not be more energetically pushed forward, and the milling power increased. Until this be done no great results can be expected.

### Violet Consolidated.

Good work is being done on this extensive property. All the trial crushings from various points have given highly payable results, but it will be some time before the mine will be in full swing.

### Champ d'Or.

Development is being pushed ahead. The western dyke is gone through, and the reef met with is very rich. It is highly probable that with the heavier stamps and the additional machinery now being completed, a very substantial increase in the returns will take place as surmised by me. The returns have been maintained. Many difficulties have been met with during the erection of new machinery.

### Cassel's Colliery.

All new machinery now complete, and the profits will be very large for the year 1895.

### Knight's Witwatersrand.

This property continues to show daily improvement, especially on the reef in the eastern section, where very rich ore is being obtained.

### Glencairns.

Mr. Pope, the manager of this mine, is doing great work in the way of development and is forging ahead beyond all expectations. The ore reserves are now very considerable. There was some little stoppage whilst erecting the additional stamps,

which will not make much difference to the output, and the profits should now equal £9000 monthly.

### New Kleinfontein and Benoni.

It is now almost settled that these two properties will shortly be merged into one. The 15 new stamps on the Kleinfontein will be working in a few days, and this will considerably increase the output, the regularity of which proved that the ore is of a uniform grade throughout. The returns have for many months past increased, but only by a few ounces, while the cost of working has been reduced. The lower development proceeds energetically. The possibilities are very great, and 100 stamps could be kept going with very little trouble.

### New Chimes.

Development well ahead of the mill; ore reserves considerable. Mine looking splendid.

### New Primrose.

On the 1st of January the new mill of 160 stamps was started. The mine is opened up well, and the ore reserves are considerable. The amount of ore milled monthly should exceed 18,000 tons, and the output be something over 10,000 ounces. It is probable that dividends equal to 60 per cent. will be forthcoming in 1895.

### New Heriot.

Sixty stamps will be at work during this year, and dividends at the rate of 120 per annum should be forthcoming. The ore reserves are a long way ahead of all requirements.

### Geldenhuys Estate.

This mine is very far behind in development. The extra 40 stamps (making in all 120) will be started in a few weeks; but great difficulty will be experienced in keeping the mill going unless more progress be made with development.

### New Rietfontein.

Nos. 1 and 2 shafts will be connected, and, as this is the only part of the mine that is payable, all work is certain to be centred on this spot. At present the prospects are better than they have been for some time past, and it is not improbable that fairly good crushings will be forthcoming during the next few months.

### May Consolidated.

About the beginning of April the extra stamps will be running, when the mine will give a good account of itself.

### New Black Reef Mine

has been reconstructed, and the old shareholders will get about one new share for every three old ones. This mine has always been disappointing.

### Jumpers Deep.

Active work is about to be commenced on this mine, and, as the reef in the Jumpers has flattened out fully 5 per cent. from the outcrop down to the 5th level, it can be expected that the south reef will be struck at a depth of about 950 feet.

### Vogelstruis Mine.

Active work is being carried on, and the pannings show about 6 to 7 dwts. It is just possible that with a large battery this mine will yield a small profit per ton.

### Mallina Gold Mine (Limited)

Report on the progress made at the company's property during the quarter ending 31st December, 1894:—Since the 3rd of October, when the last report was made to the shareholders, the development of the company's mines has proceeded in a most satisfactory way. Owing to unforeseen difficulties in getting the heavy crushing plant transported from the coast to the mine, the first crushing has been delayed longer than was anticipated. The machinery is now practically well erected, and the report of the first returns is expected within a very few weeks, and will be communicated to the shareholders as soon as possible. Good ore, meanwhile, has been regularly raised, and the value of the property has been abundantly demonstrated. The original Mallina claim has an area of 25 acres and the main reef runs for something like 800 yards along the centre of this strip of ground. Whether or not the reef passes out of the property at each end has not, so far as is known, as yet been ascertained; but that it exists throughout the greater part of the ground, and carries a rich supply of gold, is proved conclusively by the company's recent mining operations. Hitherto the workings have been confined to three of the shafts—the east, west, and underlay shafts—and these are connected by a level driven along the reef for a distance of about 100 yards. The depth of this working is only 45 feet, on account of the water which lies in the rock below this level, and the reef thus opened up has proved very rich. Throughout nearly all this distance the reef turns out to be from 3 to 5 feet thick, and samples yielding over 30 ounces per ton have been obtained at several places. The shafts hitherto opened up by the company are situated near the centre of the original claim, but towards the east end the reef is further opened out by the main shaft, over 100 feet deep, which has only recently been cleared of water and retimbered, and from which the best samples of ore sent home for assay, as mentioned in last report, were obtained. It may thus be concluded that the original reef has been proved to be capable of yielding the most handsome returns, and what is perhaps more important still, of containing such a body of payable ore as will last for many years to come. The Flat Reef Claim, or Mallina Extended, situated a short distance southwest of the original claim, contains a flat-lying reef resembling in position a seam of auriferous quartz. The manager, Mr. Kerr, who acquired this claim for the company in July on his arrival at the mine, has been actively developing it, and it is gratifying to learn that this, too, has turned out well. When the value of the flat reef was ascertained he pegged off a considerable area of ground in the vicinity, under which the reef is expected to pass. The company has in all, instead of a single claim of 25 acres, a group of claims covering 85 acres, and is thus one of the largest mining properties in Western Australia. In a recent report of October 23 the manager states that two new reefs have been discovered on the flat reef claim, not yet showing much gold, but every indication of turning out well. He says further:—"As soon as our first crushing goes through, there will be a great rush to this field, and I am glad that we have secured so much good ground." As this is now the hot season, and the Mallina property is within the tropics in a dry, sandy region, work cannot be carried on with very great vigour. Owing to the intense heat which, by the last report dated 17th November, had then reached 115° in the shade, the health of the staff has suffered considerably, and hence the progress of operations may not recently have been so great as could have been wished. Midsummer is, however, now a month past, and copious rain has fallen in the district, so that the conditions for working are more favourable. As a very large quantity of ore is now at grass, the board are confident that in a short time they will be able to show results which will fully justify all expectations as to the future of the mine. A box of rich specimens of ore from the different working has recently come to hand, and can be seen at the offices of the company.—H. M. Cadell, Chairman; J. Wright Robb, secretary. Registered office of the company, 49, West George-street, Glasgow, 25th January.

## THE METAL MARKETS.

### LONDON METAL MARKET.

#### THE METAL MARKET, LONDON, FEBRUARY 1.

##### Copper.

A close at the lowest, with a flat tendency. The American market does not seem to have undergone any change, and the offers from that country to Europe are not on a large scale. There has been an improved consumers' demand for refined copper. The G.M.B. market opened at £40 3s. 9d. sharp cash was touched, Wednesday saw sharp cash at £40 6s. 3d., and Thursday £40 5s. On Friday £40 2s. 6d. was done for sharp cash, and £40 8s. 9d. for three months', closing at £40 2s. 6d. cash, and £40 7s. 6d. to £40 10s. three months. The business done in the beginning of the week was of average volume, but very little was done in the latter half. Statistics for the fortnight show an increase of stocks of 781 tons. American shipments for the month, 7060 tons.

##### Tin.

The week opened firm at £61 10s. cash and forward, and the market advanced rapidly to £62 5s. Tuesday saw a drop of £1, and later we receded to £60 10s. for all positions. Thursday's market was very active at better prices, £61 being bid at the end for cash and three months. Friday was again lower and the market closed quiet at £60 12s. 6d. to £60 15s. for cash, three months showing about 2s. 6d. backwardation. European stocks show a decrease of about 600 tons for the month. The Dutch market opened at 37 fl. for Billiton, and, after receding to 36½ fl. recovered to 36 fl. Banca 37 fl.

##### Pig Iron.

The Scotch shipments last week were 5691 tons, an increase of 2419 tons over the same period last year. The week opened with a steady market, and a moderate turnover at the lower level, 41s. 2d. to 41s. 2½d. for cash, improving slightly, and then gradually falling, with flat markets to 41s. 0d. cash, and 41s. 2½d. a month buyers. Hematite opened at 42s. 4d., and declined to 42s. 2d.; Cleveland falling from 34s. 4d. to 34s. 1d.

##### Lead.

This market has been quiet, but steady with a moderate enquiry. The quotations are £9 10s. to £9 12s. 6d. for soft foreign, and £9 12s. 6d. to £9 15s. for English.

##### Spelter

remained steady till the end of the week, when lower prices were accepted, the quotation now being £14 to £14 2s. 6d. for ordinaries, and £14 2s. 6d. to £14 5s. specials.

##### Antimony

dull at £32.

##### Quicksilver

First hands maintain £6 12s. 6d., seconds have reduced to £6 10s.

The following are to-night's (February 1) prices of metals:—

	Copper.	Iron.	Lead.	Spelter.	Antimony.	Quicksilver.	Manganese.	Aluminium.	Nickel.
BRASS: Wire	0 0 5								
" Tubes (solid drawn)	0 0 5								
" Sheets	0 0 5								
PHOSPHOR BRONZE: Alloys II.	0 0 5								
" III. or V.	0 0 5								
" VII.	0 0 5								
" XI.	0 0 5								
" Vulcan brand Al	0 0 5								
DUB METAL	0 0 5								
BULL'S METAL	0 0 5								
Ferrobronze (Vivian's).	0 0 5								
Ingots	per lb.								
Ordinary sheets, plates, bolts and bars	0 0 5								
Screw bolts and nuts	0 0 5								
Pump rods, plain	0 0 5								
" finished	0 0 5								
DELTA METAL: No. 4 (per ton)	0 0 5								
" Sheets and plates (per lb.)	0 0 5								
" Bars, round, square, flat (per lb.)	0 0 5								
" hexagon (per lb.)	0 0 5								
Tin									

# "THE MINING JOURNAL" SHARE LIST.

**NOTES AND REFERENCES.**—The following are the significations of the abbreviations and references which occur in the Share List.—*Al.*, Antimony; *As.*, Arsenic; *Bl.*, Blende; *Bz.*, Bora; *C.*, Copper; *D.*, Diamond; *G.*, Gold; *I.*, Iron; *L.*, Lead; *M.*, Manganese; *N.*, Nitrates; *P.*, Phosphates; *Q.*, Quicksilver; *R.*, Ruby; *S.*, Silver; *S.L.*, Silver-lead; *Sul.*, Sulphur; *T.*, Tin; and *Z.*, Zinc. \* in the "called up" column of British Mines, signifies that the mine is conducted by the Limited Liability Law of the South African Republic.

**The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and almost invariably is found correct; we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.**

## BRITISH MINES.

Name	Closing Price, Feb. 1, 1895	Closing Price, Jan. 25, 1895	Par.	Latest Dividend	Called up per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office
Blue Hills ... CT	2/5 5/-	2/6	£ s.	2/- May, '94	£ s. d.	5,156	Cornwall	Camborne, St. Just.
Botallack ... T	3/4 3/4	3/4	1	—	51 4 6	1,580	Cornwall	Camborne.
Carn Brea ... T	1 1/2 2	1 1/2	1	2/6 Dec., '93	22 8 5	6,000	Cornwall	Carn Brea.
Cook's Kitchen ... T	10/- 15/-	10/-	1	—	35 15 1	4,900	Cornwall	Camborne.
Devon Gwastow CA	par 1/2 pm.	par 1/2 pm.	1	0	—	25,000	Near Tavistock	8, Finsbury circus.
Devon St. Cons. CA	1 1/2 1 1/2	1 1/2	5	0	3/- Nov. '94	2 0 0	Devon	8, Finsbury circus.
Dolcoath ... T	45 46	44 1/2	1	12/6 Apr. '94	9 12 6	4,700	Cornwall	Camborne.
Drakewalls CTM	1/- 1/8	1/-	0	5	—	61,856	Cornwall	Dashwood House.
East Pool ... AT	4 1/2 5	4 1/2	1	1/6 Sept. '94	0 9 9	6,400	Cornwall	Illogan.
Gawton ... CA	—	—	2	10	—	12,000	Devon	20, Great St. Helens.
Great Laxey ... L	1 1/2 2	1 1/2	4	5/- Apr. '94	2 0 0	15,000	Isla of Man	Douglas, Isle of Man.
Green Hurth ... L	1/8	1/8	1	0	6/3 June '94	0 19 0	Cumberland	Newcastle.
Halkyn ... L	—	—	1	0	2/- Dec. '94	1 0 0	Wiltshire	Chester.
Haworthby ... T	—	—	1	0	—	1 0 0	Devon	6, Queen-street-place.
Isle of Man ... L	—	—	5	0	1/6 Dec. '94	5 0 0	Isle of Man	Chester.
Killifreth ... T	17/8 22/8	15/-	6	—	1/6 Nov. '94	5 11 6	Cornwall	Truro.
Leadhills ... L	15/- 20/-	15/-	4	—	3/- Sep. '92	6 0 0	Lanarkshire	30, Finsbury circus.
Levant ... CT	4 1/2	4	4	—	4/- Nov. '94	11 9 6	Cornwall	Penzance.
Lovell ... T	—	—	5	0	1/3 Nov. '94	1 16 7	Wendron	3, Gt. Queen-st., S.W.
Miners ... L	—	—	5	0	5/6 Mar. '95	5 0 0	Denbighshire	Minera, N. Wales.
Neath & Tid. LZ	2/-	2/-	1	0	6/2 Feb. '95	0 18 0	Northumberl.	Newcastle-on-Tyne
New Cooke's Ktn. TC	—	—	1	0	1/1 Oct. '92	1 0 0	Cornwall	Camborne.
New Minera ...	—	—	1	0	—	30,000	North Wales.	8, Queen-street-place.
Parc ... LZ	—	—	1	0	—	5,000	Cornwall	Billiter sq. buildings
Phoenix United TC	1/6 2/-	1/6	—	—	1/3 Mar. '94	7 4 6	Cornwall	Liskeard.
Polberro ... T	10/- 15/-	12/6	—	—	—	18,000	Cornwall	37, Walbrook.
St. Condurrow TC	5/- 10/-	2/8	—	—	3/6 Apr. '93	7 17 6	Cornwall	20, Great St. Helens.
South Crofty TA	8/10	5/-	—	—	—	6,123	Cornwall	Pool, Cornwall.
S. Frances Untd. T	2/8 7/8	2/8	—	—	—	6,000	Cornwall	Redruth.
Tincroft ... T	4 1/2 5 1/2	4	—	—	2/- Aug. '94	15 7 8	Cornwall	Carn Brea.
Weardale ... L	8/9	8/9	4	0	1/3 Oct. '90	5 10 0	Cornwall	3, Lombard-court.
West Frances ... T	2/8 7/8	2/8	—	—	2/6 May '95	16 4 7	Cornwall	37, Walbrook.
West Kitty ... T	5/4 5/4	5	—	—	2/- Dec. '94	1 2 0	Cornwall	Redruth.
Wheal Agar ... TA	2/6 7/8	2/6	—	—	2/6 Aug. '95	23 15 2	Cornwall	110, Cannon-st., E.C.
Wheal Bassett ... TC	1 1/2 1 1/2	1 1/2	—	—	10/- Apr. '95	12 3 0	Cornwall	7, Union-court, E.C.
Wheal Friendly ... T	1/8 1/8	—	—	—	—	0 12 9	Cornwall	14, Broad-street Av.
Wheal Grenville T	11/4 12/4	11	—	—	2/6 Nov. '94	18 2 0	Cornwall	14, Broad-street Av.
Wheal Kitty ... T	1/2 3/2	1/2	—	—	3/- Mar. '95	4 5 6	Cornwall	14, Broad-street Av.
Wheal Metal & F.T.	3/4 3/4	3/4	—	—	—	10,784	Cornwall	14, Broad-street Av.

## AUSTRALIAN AND NEW ZEALAND MINES.

Name	Closing Price, Feb. 1, 1895	Closing Price, Jan. 25, 1895	Par.	Latest Dividend	Called up per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office	
Abbotts ... G	5 1/2 5 1/2 pm	5 1/2 pm	1	0	—	100,000	Morichson ...	17, Old Broad st.	
Achilles Gld Fld.	2/2 2/2	2/6	1	0	—	80,307	New Zealand	3, Church Pas., E.C.	
Aladdins Lamp G	1 1/2 1 1/2	15/9	1	0	1/ Dec. '94	1 0 0	N. S. Wales	4-6, Throg. Avenue.	
Assoc. Gold Mine	5 1/2 5 1/2	1/2	1	0	—	100,600	Coolgardie ...	30, Finsbury circus.	
Austin ... G	1 1/2 1 1/2	1 1/2	1	0	—	50,000	W. Australia	Penzance.	
Australasian ... G	4 1/2 5	5/8	1	0	—	375,000	Queensland	3, Gt. Queen-st., S.W.	
Australian ... C	—	—	20	0	—	210,000	Queensland	15, Old Jewry Chbrs	
Aus. Bro. Hill Con.	1/6 2/-	1/9	1	0	1/6 June '94	1 0 0	N. S. Wales	18,315	
Baker's Creek ... G	1 1/2 1 1/2	1	1	0	1/ Dec. '94	0 17 6	N. S. Wales	11,000	
Bayley's Reward G	12/7 13/7	13/7	1	0	—	400,000	W. Australia	18,315	
Big Blow ... G	5 1/2 5 1/2	3/6	1	0	—	100,000	W. Australia	2, Met. Ex. Buildings	
Blackett's Claim G	8/9 11/3	10/3	1	0	—	60,000	W. Australia	14, Sherborne ln., E.C.	
Blue Spur & G. G.	—	—	1	0	—	80,000	New Zealand	6, Gt. St. Helens.	
Bonnie Dundee G	13/7 14/7	14/7	1	0	—	120,000	Queensland	3-5, Gracechurch-st.	
Brilliant ... G	18/8 19/8	19/8	2	0	—	250,000	Queensland	Charter Towers.	
Brilliant Block ... G	13/4 13/4	13/4	2	0	—	250,000	Queensland	3, Gracechurch-st.	
Brilliant, St. Geo.	26/3 28/3	28/3	0	10	6d. Dec. '94	0 6 3	Queensland	Charter Towers.	
Brit. Brok. Hill S.	5/6 6/6	6/6	5	0	—	5,000	Queensland	72,000	
Broker Hill Prop.	2	2/6	1/3	0	8	1/ Jan. '95	0 8 0	Queensland	20, Great St. Helens.
Brown's Creek ... G	15/4 15/4	15/4	1	0	—	—	Queensland	14, Hill st., Edinboro'	
Cashman Bril. ... G	3/6 3/6	3/6	1	0	—	6,000	Queensland	14, Hill st., Edinboro'	
Carrington ... G	4/6 5/6	4/6	1	0	—	120,000	Queensland	14, Hill st., Edinboro'	
Con. G. M. of W. A.	5/4 5/4	1/2	15/	0	—	90,000	Queensland	14, Hill st., Edinboro'	
Coolgardie ... G	—	—	1/2	0	—	40,000	Queensland	14, Hill st., Edinboro'	
Coolgardie (Shrubs) ... G	6/9 7/3	7/3	1	0	—	—	Queensland	14, Hill st., Edinboro'	
Craven's Cal. ... G	3/4 3/4	3/4	1	0	—	—	Queensland	14, Hill st., Edinboro'	
Crown Bay's G	1/4 1/4	1/4	1	0	—	—	Queensland	14, Hill st., Edinboro'	
Croydon King B. G	3/5 3/5	3/5	1	0	—	—	Queensland	14, Hill st., Edinboro'	
Cumberland (New) G	4/6 5/6	6/	1	0	—	2/6 Dec. '94	0 0 1	Queensland	14, Hill st., Edinboro'
Day Dawn B. & W. G	9/8 10/8	10/8	1	0	—	2/6 Mar. '95	0 0 1	Queensland	14, Hill st., Edinboro'
Day Dawn P. C. G	4/9 5/3	5/3	1	0	—	2/6 Apr. '95	0 0 1	Queensland	14, Hill st., Edinboro'
Eaglehawk ... G	2/2 2/9	2/9	3	0	—	—	Queensland	14, Hill st., Edinboro'	
Empress Cooley G	3/4 3/4	3/4	1	0	—	—	Queensland	14, Hill st., Edinboro'	
Eng. & Aus. Cop. Co.	1/4 1/4	1/4	1	0	—	2/6 Dec. '94	0 0 1	Queensland	14, Hill st., Edinboro'
Etheridge ... G	—	—	1/2	0	—	—	Queensland	14, Hill st., Edinboro'	
Frederick the Gt. G	par 1/2 pm.	par 1/2 pm.	1	0	—	—	Queensland	14, Hill st., Edinboro'	
Glenrock ... G	1/9 2/3	1/9	1	0	—	—	Queensland	14, Hill st., Edinboro'	
Golconde ... G	1 1/2 1 1/2	1 1/2	1	0	—	—	Queensland	14, Hill st., Edinboro'	
Gold Estate ... G	par 1/2 pm.	par 1/2 pm.	1	0					

## SOUTH AND CENTRAL AMERICAN MINES—(Continued).

Name.	Closing Price, Feb. 1, 1895	Closing Price, Jan. 25, 1895	Par.	Latest Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Santa Barbara ... G	—	—	6 s. 10	1/3 Dec. '94	6 s. d.	60,000	Brazil	Liverpool
Santa Elena ... N	7 1/2	7 1/2	5 1/2	5/— Oct. '94	5 1/2	22,000	Tarapaca	3, Gracechurch-st.
Santa Rita ... N	3 1/2	4 1/2	3 1/2	15 1/2 Apr. '94	3 1/2	20,000	Chili	Dashwood House, E.C.
San Sebastian ... N	2 1/2	2 1/2	2 1/2	5/— Dec. '94	5 1/2	50,000	Chili	Dashwood House, E.C.
Segovia ... G	—	—	5 1/2	—	5 1/2	160,000	Colombia	5, Coptic-l-building,
S. ore Pref. ... G	—	—	1 1/2	10 1/2 Dec. '94	9 1/2	540	Colombia	23, St. Swithin's-lm.
Sacred Ord. ... G	—	—	1 1/2	5 1/2 Dec. '94	1 1/2	16,000	Colombia	23, St. Swithin's-lm.
Tetuan ... G	—	—	1 1/2	—	1 1/2	200,000	Colombia	5, Coptic-l-building
Tolima "A" ... S	7 1/2	8 1/2	7 1/2	10/— Dec. '94	8 1/2	6,000	Colombia	18, Finsbury-circus,
Do. "B" ... S	6 1/2	7 1/2	7	10/— Dec. '94	5 1/2	6,000	Colombia	18, Finsbury-circus,
Vic. & Altamira ...	1/3 1/8	1/3	0 5	—	0 5	200,000	Venezuela	Broad-st. Avenue.
West Indian ... G	—	—	0 5	—	0 5	700,000	San Domingo	49, Queen Victoria-st
Yuma ... G	—	—	0 5	—	0 5	261,422	Ecuador	1, Gt. Winchester-st.

## AFRICAN MINES.

Name.	Closing Price, Feb. 1, 1895	Closing Price, Jan. 25, 1895	Par.	Latest Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
African Coal	6/3	6/2	6/1	1 0	20 p.c. Jan. '95	0 16 6	—	—
African Gold Con.	10/—	11/—	11/—	1 0	—	0 8 0	300,000	—
Afrikander ... G	11/—	11/—	11/—	1 0	—	1 0	40,000	Transvaal
Agnes Block	12/6	15/—	9/—	1 0	—	1 0	78,507	Transvaal
Alexandra Estate G	5/9	6/3	6/3	1 0	—	5 0	225,000	S. Africa
Anglo-French Exp.	11/—	14/—	23/—	5 0	10 1/2 Dec. '94	5 0	30,300	West Coast
Appantoo ... G	—	—	1 0	—	1 0	65,000	Witwatersrand	
Aurora ... G	16/—	17/—	15/—	1 0	5 1/2 Mar. '95	1 0	77,585	Witwatersrand
Baltic Ersteling G	5/—	5/6	5/3	0 10	—	0 9 6	520,000	Witwatersrand
Balkis Land	4/3	4/9	4/9	0 10	—	0 10 0	200,000	Transvaal
Banket ... G	2/9	2/3	2/9	1 0	—	1 0	200,000	Witwatersrand
Banties Reef ... G	2/4	2/4	2/4	1 0	—	1 0	83,000	Witwatersrand
Barrett ... G	10/6	11/6	11/6	0 10	—	0 9 0	207,495	Witwatersrand
Bechuanaland Exp.	52/8	33/8	33/8	1 0	—	1 0	200,000	Bechuanaland
Blonk "B" Lang	16/—	17/6	16/—	1 0	—	1 0	515,000	Transvaal
Boovent Land ... G	1/4	1/4	1/4	1 0	—	0 11 0	95,000	S. Africa
Brit. S. A. Char.	4/2	4/6	4/6	1 0	—	1 0	2,000,000	Transvaal
Buffelsdorp ... G	3/6	3/6	3/6	1 0	—	1 0	250,000	Potchefstroom
Bulwana Synd.	7 1/2	1 1/2	1 1/2	1 0	—	1 0	12,000	Matabeleland
Cape Asbestos ... G	2/2	2/2	2/2	1 0	—	1 0	50,311	Orange River
Cape Copper ... C	1/2	1/2	1/2	2 0	1/3 Dec. '94	2 0	300,000	Cape Colony
Do. 5 1/2 Pref. ... C	2/2	2	2	1 0	1/3 Dec. '94	2 0	45,000	Cape Colony
Cassel Colliery ... G	3/4	4	3/4	1 0	10 p.c. Dec. '94	1 0	75,000	Transvaal
Con. Monirose ... G	1/2	1/2	1/2	1 0	—	0 18 6	69,000	Witwatersrand
Champ d'Or Deep G	4	4/4	4/4	1 0	—	1 0	116,016	Witwatersrand
Champ d'Or Deep G	14/6	18/6	19/3	1 0	—	1 0	275,000	Transvaal
Champ d'Or French	—	—	1 0	—	1 0	60,000	S. Africa	
City and Suburb ... G	15/—	16/—	16	1 0	4/— Jan. '95	1 0	75,000	Witwatersrand
C. tassatroom ... G	5/—	4/—	3/—	0 5	25 1/2 Mar. '94	0 5	140,000	De Kaap
Con. Buitfontein D	25/8	27/8	26/8	1 0	—	0 5 0	721,500	Grifualand W
Con. Deep Levels G	4	4/4	4/4	1 0	4/— June '94	1 0	187,250	Transvaal
Con. G. Filds & S. A.	3/4	3/4	3/4	1 0	15 1/2 Nov. '94	1 0	250,000	S. Africa
Do. 5 1/2 Deben. ... G	10/4	10/4	10/4	5 1/2 Jan. '95	5 1/2	60,000	Transvaal	
Crossus Deep ... G	2/4	2/4	2/4	1 0	—	1 0	250,000	Witwatersrand
Crown Reef ... G	9/4	9/4	9/4	1 0	25 1/2 Nov. '94	1 0	120,000	Witwatersrand
De Beers Consol. D	19/4	19/4	19/4	5 1/2 Jan. '95	5 1/2	799,781	Transvaal	
Do. 5 1/2 1st Deb. ... G	13/7	10/8	10/7	100	5 1/2 Jan. '95	5 1/2	23,000,000	Transvaal
Do. 5 1/2 B. B. Oh.	10/6	10/7	10/6	100	5 1/2 Jan. '95	5 1/2	270,100	Transvaal
Durban Roadpt. G	6/4	6/4	6/4	1 0	5 1/2 Oct. '94	1 0	125,000	Transvaal
Eastleigh ... G	17/—	17/6	17/6	1 0	—	1 0	240,000	Witwatersrand
East Rand ... G	48/6	49/6	51/6	1 0	—	1 0	570,000	Witwatersrand
Evelyn ... G	1	1	1	1 0	10 1/2 Oct. '94	1 0	66,000	Witwatersrand
Exploration Co. ... G	1/2	1/2	1/2	1 0	1/— Dec. '94	0 4 0	14,000	Witwatersrand
Ferreira ... G	6/2	6/2	6/2	1 0	25/— Feb. '94	1 0	69,350	Witwatersrand
Forbes Reef (N.W.) G	3/8	4/8	3/8	1 0	50 1/2 Dec. '94	0 19 0	105,000	Transvaal
T. Johnson & Co. ... G	18/6	19/6	18/6	1 0	—	1 0	200,000	Witwatersrand
Geldenhuus Deep G	6/2	6/2	6/2	1 0	—	1 0	265,000	Transvaal
Geldenhuus Est. G	5/4	5/4	5/4	1 0	10 1/2 Oct. '94	1 0	187,800	Witwatersrand
Do. Main Reef G	17/8	18/6	17/—	1 0	—	1 0	150,000	Witwatersrand
Geldenhuus South ... G	1/8	1/8	1/8	1 0	—	1 0	—	—
George and May G	9/—	31/—	19/—	1 0	—	1 0	112,750	Witwatersrand
George Goch ... G	2/—	2/—	2/—	1 0	—	1 0	100,000	Witwatersrand
Ginsberg ... G	17/6	18/6	17/6	1 0	—	1 0	130,000	Witwatersrand
Glencairn ... G	3/5	3/4	3/11/2	1 0	7 1/2 Dec. '94	1 0	300,000	Transvaal
Gold Estates T. G	3/6	3/6	3/6	1 0	15 1/2 Dec. '94	0 10 0	130,000	Transvaal
Gid. Fls. Deep ... G	3/4	3/4	3/4	1 0	—	1 0	600,000	S. Africa
G. F. of Mashondi. G	18/5	18/5	13/9	1 0	—	1 0	230,000	Mashondaland
G.F. Tiersd Fuego	2/9	4/3	3/9	0 4	—	0 4	400,000	Mozambique
Grahamstown ... G	16/—	17/—	18/6	1 0	—	1 0	150,000	Witwatersrand
Graskop ... G	2/—	2/—	1/3	0 5	24 1/2 Mar. '94	0 5 0	400,000	Transvaal
Grifualand W. ... G	7/3	7/3	7/6	10	2 1/2 Sept. '94	10 0	105,700	Transvaal
Guy Fawkes ... G	8/—	8/—	8/—	0 10	—	0 8 0	24,000	Transvaal
Harmony (Prof) G	12/—	14/—	14/—	1 0	—	1 0	260,000	Transvaal
Henry Nourse ... G	5/—	5/—	5/—	1 0	—	1 0	100,000	Transvaal
Joe's Reef ... G	7/5	8/8	7/6	1 0	—	1 0	57,404	Transvaal
Johannesburg G.F.	3/6	4/8	3/8	1 0	—	1 0	93,537	Transvaal
Johannesburg Pnr.	3/6	3/6	3/6	1 0	12 1/2 Nov. '94	1 0	21,000	Transvaal
Jubilee ... G	8/—	8/—	8/—	1 0	30 1/2 Dec. '94	1 0	30,000	Transvaal
Jumpers ... G	5/6	5/6	5/6					

covered with an iron grating, which assists the washing of the sand, and arrests the gold, amalgam, and schlich. Transversal cuts 5 inches wide, and covered with an iron sieve with interstices of 1 inch between the bars, are made along the length of the sluice at distances of 12 to 14 feet. The fine gravel and water fall through these sieves and pass along a small inclined conduit into the second sluice, which is parallel to the first but at a lower level. This sluice is covered with a wooden grating for retaining the gold and amalgam. At its head this sluice is from  $1\frac{1}{2}$  to 2 feet wide, and it has a uniform inclination of  $3\frac{1}{2}$  inches per selenite. This second sluice widens out somewhat towards the bottom as the amount of sand falling through the cross cuts in the first sluice increases. The first sluice, on the contrary, is made wider towards the head. In both sluices a fresh supply of water can be added if required, according to the state of the division of the sand. The first sluice terminates in a sieve inclined at  $45^\circ$ , over which the coarse gravel rolls into a hopper, whence it is cast into trucks or carts and carried to the dump. The smaller particles fall through this sieve on the second sluice, which here bends underneath the first sluice. The second sluice terminates in a kind of rake arrangement for collecting the fine-washed gravel. The chief condition required in this mode of washing is a sufficient supply of water.

With respect to veinous or quartz gold in Siberia, it is only extracted in the Yeniseisk region in very small quantities; in the Altai, in the exploitation of the silver ores from the Zyrinov and Ridderk Mines, and in the Transbaikal province, where three deposits are now worked, giving a yearly yield of 12 to 17 pounds per year. The gold ores extracted from these deposits are crushed in stamps and washed in sluices covered with amalgamated copper sheets. The extraction of the gold is extremely imperfect, and a large amount is lost. As a portion of the gold is in a state of combination, some experiments were made in 1885 to apply Mountell's process for the treatment of the gold ores at one of the deposits in the Transbaikal province, but they were not successful.

In general, one of the chief hindrances to the development of the exploitation of veinous gold ores in Siberia is the absence of mechanical works where the necessary machines could be constructed and repaired, as at present such machines have to be brought from the Urals at a great cost. An extended application of the wet chlorine methods of treatment in Siberia is hindered by the cost of the materials requisite for the production of chlorine from bleaching powder. Apparently the extraction of gold by means of electrolysis would be more profitable in Siberia, as the use of turbines, which is already beginning at the gold mines, would give the possibility of having a mechanical motor during the whole year, and of thus treating a sufficient amount of ore to bring in a profit.

The exploitation of gold over the whole of Russia is carried on upon the basis of the statute of the private gold industry, published in 1870. According to this statute the gold miners working upon proprietary lands pay a tax upon a yield of gold to the Government, while those working upon State lands or lands belonging to His Majesty's Cabinet, pay an extra royalty to the Government or the Cabinet for the land covered by their workings. The tax upon the yield of gold is levied on the amount of pure gold and silver separately present in the unrefined metal. The gold miners in the Olekmisk region, as the richest, pay a 10 per cent. tax and 10 roubles royalty per dessiatine of Government land occupied by the workings; in the province of the Amour there is a 5 per cent. tax and 5 roubles per dessiatine; in all the remaining parts of Siberia and in European Russia, there is a 3 per cent. tax, and a rental of 1 rouble per dessiatine per year.

The gold workings on the lands belonging to His Majesty's Cabinet are divided into three classes according to their yield, and they pay a royalty from 5 to 15 per cent. to the Cabinet, and a rental of 15 kopecks per selenite length of the workings.

All the schlich gold obtained by private individuals in Siberia has to be sent by them to the Government smelting houses, of which there are two, one for Western Siberia at Tomsk, and one for Eastern Siberia at Irkutsk. Besides this, His Majesty's Cabinet under whose jurisdiction are the Altai and Nerchinsk works, has its own laboratory for the treatment of precious metals. The gold is smelted at the smelting house, and its degree of purity determined by assay. The metal is forwarded to the St. Petersburg Mint, and the gold merchants are given bills by which they obtain gold or silver coin or gold ingots.

(To be continued.)

## REPORTS FROM THE MINES.

### BRITISH MINES.

DEVON GREAT CONSOLS.—Wm. Cleme, January 31: There is no alteration in our underground workings since the date of the monthly report. At Watson's, the water wheel being now in full work, the water underground is drained to about half way down the 148 fathom level, and we are hoping to reach the bottom levels without further delay. During the past week we have had another fall of snow, and the frost is very severe, causing great inconvenience at surface. We are, however, doing all we can to overcome the severity of the weather.

GREAT LAXEY.—January 22: The 295 end north of Welsh is now within 45 fathoms of Dumbell's shaft, and at this point a branch of lode has been met with which has probably some connection with the main lode, but the bearing being too much to the westward we shall now direct the driving at an easy angle towards the footwall so as to avoid sharp bends in the level, as well as sooner to arrive at where we expect to find the lode strong and settled. The expected improvement in the 278 end north of Dumbell's shaft, I regret to say, has not yet taken place, the lode continuing small and only averaging in value, since passing the winze, about 4 fathoms back, about £5 per fathom. We may hope to see a change for the better here soon, as the lode in the level above contained more ore a little further north. The sink in the 278 level is poor at present. The new stopes in roof has slightly improved, now worth £10 per fathom, which is also the value of one of the stopes in sole of 266, while the other is worth £12 per fathom. There is no further change than that noticed in last report in the 255 end north, nor is there any worth noticing at any of the other stopes or working places, which average in value at present £8 per fathom.—(Signed) W. H. Rowe.

LEADHILLS.—W. H. Paull, January 29: Brown's vein. The 160 fathom level is now extended 25 fathoms 5 feet north of Jeffrey's shaft, and set to seven men at 8s. per fathom; vein here 4 feet wide, carrying a good mixture of spar, spotted with lead ore, but not sufficient to value. The same level is driven 34 fathoms south of Wilson's, set to seven men at 7s. per fathom; vein in forebreast 4 fathoms wide, composed chiefly of stone intermixed with spar, and is now closely approaching the run of ore ground seen at the level above. A stope over this level south of Jeffrey's is set to two men at 42s. 6d. per fathom; vein 4 feet wide, and will produce 20 cwt. of ore per fathom. No. 2 stope over the 145 fathom level north of Jeffrey's shaft, set to four men at 30s. per fathom, will yield 30 cwt. of ore per fathom. No. 3 stope over this level north of same shaft set to four men at 35s. per fathom is worth 30 cwt. of ore per fathom. No. 4 stope over same level north is on vein 4 feet wide, yielding 25 cwt. of ore per fathom. The drift above the 130 fathom level going south from old stope north of Jeffrey's shaft is set to four men at 25s. per fathom. The vein here having improved, and

being worth 30 cwt. of ore per fathom, I have increased the number of men to prove this section more rapidly. This point has now reached a corresponding height with the 115 north, and in future will be referred to as the 115 south of old stope. The 115 fathom level is extended 136 fathoms 1 foot north of Jeffrey's shaft, set to three men at 8s. 6d. per fathom; vein 4 feet wide, improving in character, and there are indications of its becoming productive soon. No. 2 stope over this level north of Jeffrey's shaft has been suspended, vein not containing sufficient ore to extract. The 100 is now driven 186 fathoms south of Wilson's shaft, set to four men at 6s. per fathom. The vein here continues of a very promising character, letting out a little water, and is intermixed throughout with a kindly spar. The crosscut east at the 100 fathom level south of Wilson's shaft is now advanced 41 fathoms 5 feet 9 inches towards Raile vein, set to seven men at 12s. per fathom. Ground rather hard and containing small branches of quartz. A drift over the 100 fathom level south of Wilson's shaft is set to two men at 7s. per fathom on vein worth 35 cwt. of ore per fathom. The 85 fathom level is extended 150 fathoms south of Wilson's shaft, set to four men at 7s. per fathom. Vein still poor. The stope over this level south of Wilson's shaft set to four men at 35s. per fathom will produce 50 cwt. of ore per fathom. A stope over the 70 fathom level south of main rise and south of Wilson's shaft is set to four men, at 45s. per fathom, on vein 6 feet wide, worth at present 100 cwt. per fathom. A stope over the 50 fathom level, south of flat rod shaft, set to four men at 35s. per fathom, will yield 30 cwt. of ore per fathom. A stope below the 35 fathom level, south of same shaft, is worth 30 cwt. of ore per fathom. Set to four men at 37s. 6d. per fathom. A stope over this level, south of ditto, set to four men at 35s. per fathom, will yield 30 cwt. of ore per fathom. The men from this stope are for a short time engaged clearing out orestuff and securing ground, &c. Grips' adit south, on Sarrowold vein, is extended 89 fathoms, and set to three men at 7s. per fathom. This vein maintains its promising character, letting out water freely, and occasionally good stones of lead ore are met with.

POLBERRIO.—January 29: During the past four weeks we have sunk 4 fathoms 1 foot 7 inches in the engine shaft, which is now 10 fathoms below the 26. The last parcel of stuff from the 26 crosscut north yielded 40 lbs. tin to the ton. There is more water in the end than formerly. We have driven 11 feet west of crosscut on Chappell's down-right lode to prepare for sinking on this lode below the 26 so as to communicate with and ventilate the shaft. The whole distance driven will average 45 lbs. tin per ton. There is no other change of importance since the meeting.—(Signed) Charles Thomas, John Harper.

SOUTH CONDURROW.—January 30: It was our intention, as reported last week, to begin to cut trip plat near the bottom of Marshall's shaft, but before doing so we put down a borehole and found that the flat lode was only a few feet below, therefore we have put on another pump, and have continued the sinking; the wall of the lode is now visible in the shaft, and we hope in a few days to break into it. The lode in the 168 end west is worth £8 per fathom. The lode in the rise above the midway level is worth £10 per fathom. The 153 end west carries stones of tin and is letting out water freely. The stope in the back of the 153 is worth £12 per fathom. We are sinking a winze below the 153 west, but are carrying only a small portion of the lode till a communication is made with the rise coming from the level below.—(Signed) William Rich, William Thomas, Fred Rich.

WEARDALE LEAD.—Report on Weardale Company's mines for the week ending January 26: Groverake. The opening up of Armstrong's old rise is now nearly completed. Firestone drift east, spar vein, about the same for ore, worth 10 cwt. per fathom. Groverake cubic fathoms stopes worth 8, 8, 8, 12, 14, 16, 18, and 10 cwt. per fathom. Tribune ore for the week returned at 22 bings.—Boltsburn. The crosscut south from old rise above Watt's levels still shows strong indications of flats with a little ore, but not to value. Stopes in north flats worth 33 and 38 cwt. per fathom. Stopes in south flats worth 40, 40, 36, 30, 28, 30, and 22 cwt. per fathom.—Greenlawns, Nattrass Gill drift, stopes worth 16 and 18 cwt. per fathom. Watson's drift shows no change. Lowe's drift stopes 16 and 14 cwt. per fathom. Races drift vein composed of spar, plate, rider and some ore and other vein stuff. Rise in scar, lime, north vein, vein 2 feet wide worth 6 cwt. per fathom. Lees' sump, stope worth 32 cwt. per fathom. Sinking vein only about 1 foot wide worth 10 cwt. per fathom. Tribune ore for the week returned at 14 bings.—Sedling. Driving 64 level east vein worth 16 cwt. per fathom. Driving 64 level west vein in plate 24 feet wide of spar, rider, and a little ore. Stopes in 64 level east worth 14 and 14 cwt. per fathom. In opening up the old shaft above the 56 fathom level we have timbered up 7 fathoms and run out doors from another 3 fathoms. Ore raised for the week 58 tons. All surface work stopped by snow and frost.

WHEAL AGAR.—Redruth, January 26: Setting report. New north lode. The 330 fathom level to drive east and west of Robarts engine shaft by 12 men and two machines at £11 per fathom. The lode in the eastern end is composed of quartz and chlorite, and worth for tin £9 per fathom. That in the west is similar in composition, but only producing low quality tinstuff. The 320 fathom level to drive east of No. 2 rise by boring machinery at £11 per fathom. Lode in the present end is of a promising character, but of no value at present for tin. The 320 to drive west of No. 2 rise by boring machinery at £11 per fathom. Lode more than size of end, producing raving work for the stamps.—Great lode. The 270 crosscut to drive south by boring machinery at £10 per fathom. We are pleased to say that the branch met with to-day contains good tinstuff. We consider this to be part of the lode which we aimed for in this drive, because its character and general make is very similar to the lode seen and worked on in the tribute pitch above. We purpose to urge on this point for another 6 feet, and trust that will bring us into the lode proper.—The 245 fathom level east. It should be remembered that this point is situated about 130 fathoms east of Robarts' engine shaft, and is in conjunction with the engine or south lode, which is making back and south of the great lode parallel with, and for 20 fathoms west of the present end large quantities of tin have been returned. The lode has a fine appearance, and worth for tin £25 per fathom. We purpose bringing the boring machines in here on this section of the mine as soon as time and convenience will admit. We have one stope working in the bottom of this level worth for arsenic and tin £15 per fathom.—Old engine shaft. The crosscut at the 245 fathom level is driven 16 fathoms, and several branches passed through, all of which contain tin and arsenical muriate. The last intersected is the largest and most highly charged with mineral. This being in line with the dip of tin, we have commenced to test it by driving west on it by boring machinery at £11 per fathom. A few days will throw some further light on this point, which we hope will be found to correspond with that seen and worked in East Pool, from which such good results are being secured.—Engine lode. At the 215 fathom level we have cleared the debris and repaired the road and have commenced to drive west for the present by hand labour. In the meantime we hope to be in a position to lay down air pipes and vigorously develop this part of the mine, and judging from work done on this lode in East Pool, who have worked same close to our boundary from the 115 to the 212 fathom level, leaving off at each point with a paying lode, we feel satisfied in the course we have taken, and believe good results will accrue therefrom.—Tribute department. On the great lode we have seven pitches working by 24 men at an average tribute of 10s. in the £. On the engine or south lode we have four pitches working by 12 men at an average tribute of 10s. in the £. The plant and machinery of the Tuckingmill Company continues to work well, and gives satisfaction both at surface and underground. The ground driven throughout the mine for the month is 39 fathoms 5 feet 1 inch. It will be seen by this that rapid development is being made. All the machinery through the mine is in good order and working well.—(Signed) William Hambly, Ralph Daniel, M. D. Penhale.

### COLONIAL, INDIAN, AND FOREIGN MINES.

CARRINGTON.—Mr. Alan B. Bright, this company's manager, reports on December 15:—Victoria reef No. 1 south-east level has been driven by the contractors 8 feet, making 103 feet from the shaft; contractors have broken down the reef, which is a decided improvement, the reef opening out to over 1 foot thick of nice mineralised stone in the face, the reef making a drop down from the hanging wall towards the footwall 2 feet. Mr. Holliman and the mine manager of the Victoria both think that we are almost certain to get a shoot of gold in the drive going east which we are now making.

D'ARCY ESTATES.—Report dated December 22:—Main shaft sunk 5 feet through very hard diorite, total depth 229 feet. Tank station completed. Pump ready for work. The vertical shaft portion 3 down 45 feet. Progress for the week 20 feet bottom in hard diorite.

DE LAMAR.—Mr. Louis Pelatan, the well-known mining expert, who is just back from a professional visit in the United States, gives some interesting information about the mines owned by the De Lamar Mining (Limited) in the State of Idaho. The De Lamar gold and silver mines cover nearly 450 acres of mining land. Although a few acres only have been prospected and worked yet, nine well mineralised veins have been already opened up, one of which is of unusual size, and carries as much as 15 feet of payable ore all through. The width of the other veins ranges between 3 and 8 feet. The ore bodies are well developed, showing no signs of either shortening or pinching as they go down. The country rock is porphyry, and the fissures are well defined, which means that there is no doubt about the permanency of the mine in depth, according to the opinion of the most experienced miners in the district. Besides this, the unprospected sections of the property show some very promising outcrops, chiefly in the Summercamp group of claims, so that the discovery of new ore bodies, and even new veins, may be expected at any time, when sufficient attention is given to systematically prospecting the whole of the ground. The De Lamar veins are worked in a very substantial and economical way through two main level tunnels. They are situated at such a height above the Jordan creek that fully five or six years will elapse before pumping or hoisting must be resorted to, the mine being all the time kept on the present working scale. The ores actually milled at the De Lamar mines contain as an average the following values:—Gold, \$20; silver, \$8. The manager's reports for previous years point out a lower percentage in gold, and a higher percentage in silver. It can be deducted therefrom that the bulk of the milling stuff has a marked tendency to yield a larger proportion of gold as compared to silver in the lower levels, the aggregate value of both metals remaining about the same. Considering the low price of silver, this is a quite satisfactory feature, and this increasing yield in gold of the ores speaks greatly in favour of the mines. The reserves of milling ores in sight can be safely estimated over 120,000 tons, corresponding to three years run at the actual rate of 40,000 tons per annum. They would be greater still if the development works in the mines had not been partially suspended for some time. There is also a reserve of second class stuff, which is left in the mines, and is not taken into account, although it has been calculated to have a tonnage of over 108,000, and enough value in the ton to pay well if dealt with economically. This comparatively low grade ore can be stopped and hauled as it stands in the mine ready for stoping, and as the total cost of tracing is charged on the milling ores, the total cost of working a ton of the milling ore at the De Lamar mines is something less than \$12—less than \$8 being the cost of mining, and about \$6 the cost of milling. Thanks to Captain Plummer's splendid management, there is indeed, very little room for improvement as far as the mining is concerned, and no reduction of the milling expenses can be expected, but from a cheaper and more efficient process of treatment than the present system of pan amalgamation, which is carried on almost to a point of perfection. In fact, the De Lamar Mine can be considered as being all through in a remarkably good condition as a full working and a dividend-paying property. It is, moreover, beyond doubt that their future is more promising, as illustrated by the above statements about the size and permanency of the mineralised veins, the increasing gold value of the ores in depth, the magnitude of the ore reserves as compared to the length of development works. As a consequence of these gratifying features, there is no reasonable ground to foresee any decrease in the profits of the De Lamar Mining Company, and the 20 per cent., or 25 per cent., dividends paid to the shareholders for the last three years on the £400,000 capital, ought to be kept up to the same rate, without any trouble, for a considerable length of time. The company might even soon be able to largely increase their dividends, and thus to add a good deal to the value of the mines, by altering their present costly system of milling to a new process now proposed to them, which they have under consideration. This process has been submitted to formal tests before competent experts with entirely successful result. If resorted to, it would give an economy of over \$3 per ton on the treatment of the ordinary milling ores. It would, besides, allow to work at a profit of about \$4 per ton in the low-grade second-class ores, which have been, hitherto, considered valueless. But even without taking into account this suggestion about an improvement in the milling department, the De Lamar Mines, as they just now stand, are an exceptionally rich mining concern, and there is every reason to believe that their present prosperity will last for many years to come. Mines of such character are, indeed, scarce enough, and they deserve to be made known for the benefit of bona fide investors.

GOLDEN GATE.—The manager, under date December 15, writes as follows:—"Good progress has been made with the diamond drill, 73 feet having been bored during the fortnight, making the present depth 1777 feet. There has been no change of any consequence in the rock, and the present boring is in very solid country, the ore coming up in the 10-foot lengths. Some of the rock shows a little pyrits, and the indications are in every way favourable as gold-bearing country. I trust you will be able to supply sufficient funds to continue the boring to a considerable further depth.

WENTWORTH EXTENSION.—Report dated December 22:—Main shaft east crosscut 150 feet level in 285 feet, progress during the week 11 feet, still in hard diorite, with occasional stringers of calcite. Winze in alluvial shaft No. 4 sunk 10 feet through hard ground, total depth 35 feet. No change.

COAL IN POLAND.—The demand for Dombrowa coal has increased, owing both to the increased requirements of the southern portion of Poland, and to the transit through Prussia having been allowed to the Government of Kalisch, where the industry is increasing every year. Hitherto this Government has obtained coals from distant stations on the Warsaw-Vienna railway by horses or from Lody, or the manufacturers were compelled to use expensive imported coal. As a result, the output of Dombrowa coal rose in a twelve-month from 3 million tons to 3½ million tons. The colliery owners of that district are, however, preparing to meet further increased demands, and do not anticipate any difficulties in connection with a much larger output. A further impetus will be given to the Dombrowa coal industry by the establishment of a waterway from there to Warsaw, and the district beyond, and this depends solely upon the Prussian River being made navigable, which river is a tributary to the Weichsel, and flows through Austrian, Prussian, and Russian territory. The authorities are giving this matter every attention, and steps are being taken to make the said river navigable. The railway department is also assisting the matter by the lowering of the tariffs in the direction of Aleksandrów, where the coal is reloaded into barges, and whence it can be transported by water to Odessa. It is even possible that the Dombrowa coal may enter into competition in the Donau districts, where coal is scarce.

SHAREHOLDERS in the Koffyfontein Mines (Limited) who may be interested in viewing the recent shipment of diamonds, will be afforded facilities for so doing, at the offices of Messrs. Walter and Abrahams, 106, Hatton Garden, E.C.

**AUSTRALIAN BROKEN HILL CONSOLS.**—The mining manager reports by mail for the fortnight ended December 20. Block 96, 280 level east, prospecting drive No. 4 rise, stopes driven 28 feet. Stoping continued. Rising to the north has been discontinued on account of the lode becoming impoverished. No change in the north-eastern stope. The lode in the eastern stope is about 2 feet wide carrying small veins of iron and quartz; galena has been met with. North west drive driven 8 feet, total 40 feet 6 inches. The lode here is small, still carrying carbonate of iron containing manganite. Work here has been suspended for the present, and the men have been shifted to a point further back to a stope southwards where a little native silver has been met with. 2½ level west off incline stopes driven 12 feet. Prospecting not being encouraging, work has been discontinued and men have been transferred to No. 5 level east off incline. No. 5 level east off incline driven 4 feet 6 inches, total 48 feet. The lode is small, consisting of carbonate of iron. No. 1 rise off No. 4 level east off incline, driven 10 feet. Stoping eastwards continued; a little galena and fahlerz has been obtained. Note.—The quantity of rock mined during the fortnight was 2237 cubic feet.

**BRITISH BROKEN HILL PROPRIETARY.**—Mining manager's report for the week ending December 19:—Blackwood (No. 1) shaft, 130 feet level. North drive off east crosscut extended 14 feet, total length 73 feet, face showing blocks of sulphides and mullock. South drive off east crosscut driven 17 feet, total length 68 feet, face carrying small stringer of carbonate ore. Uprise off east crosscut risen 3 feet, total height 12 feet, and connection to south drive on 10th floor of far north stopes.—Howell (No. 2) shaft, 300 feet level. North-east drive lengthened 10 feet, total length 106 feet, face getting softer for driving.—Marsh (No. 6) shaft, 2nd level. No. 3 east crosscut extended 16 feet, total length 148 feet, face in country rock. Fossicking operations have been continued around uprise in south drive, ore showing in reef. We broke 7 tons, average 23 per cent. lead and 23 ounces silver per ton. From south stope off uprise in north drive we have mined 5 tons, average 20 per cent. and 33 ounces, and 15 tons 16 per cent. lead and 16 ounces of silver per ton. North stope over back of main south drive has been connected with opening over to No. 2 west crosscut. We broke 7 tons, average 39 per cent. and 38 ounces, and 2 tons 16 per cent. and 31 ounces per ton. From stopes down winze we mined 63 tons, average 25 per cent. and 68 ounces, and 16 tons 20 per cent. lead and 38 ounces silver per ton.—Ratcliffe's workings. East crosscut off north drive down winze driven 8 feet, total length 28 feet, face in lode matter of no value. From the 115 feet level around No. 2 north-east drive we mined 35 tons, average 25 per cent. lead and 26 ounces silver per ton. The week's assays vary from 10 to 45 per cent. lead, and from 52 to 2237 ounces silver per ton.

**BALAGHAT-MYSORE.**—Jos. Pryor, January 9: Ogle's shaft. The water in this part of the mine is now about 25 feet above the 500 feet level.—Tennant's shaft. This shaft has not only been sunk 7 feet 6 inches, or 81 feet below the 420 feet level, but we have also commenced to cut ground for the plat, as well as started driving the new or 500 feet levels north and south, and have extended the former 4 feet 6 inches, and the latter 5 feet from the shaft. The ground in the ends and the shaft is at present unproductive. I am, however, hoping we shall soon meet with an improvement, particularly in the northern level. The 420 feet level north has been driven 19 feet 3 inches, or 182 feet 9 inches from the shaft. The lode is of a kindly character, and produces a little quartz, which assays 2 dwt. 17 grains of gold per ton. The No. 1 winze in the bottom of this level has been sunk 9 feet 6 inches, or 47 feet below the level. The quartz varies from 6 inches to 1 foot wide, but the assay value is not so good, it being this week only worth about 4 dwt. of gold per ton. The rise in the back of this level has only been advanced 4 feet 3 inches, or 12 feet 6 inches above the level. The quartz varies from 2 feet to 6 inches wide, but only assays 2 dwt. 7 grains of gold per ton. I am hoping we shall communicate this place with the winze sinking below the mid-level before the next report. The 420 feet level south has been driven 10 feet 3 inches, or 88 feet from the shaft. The lode carries little quartz, but it is, as yet, not of any value. Not being satisfied with the amount of work done by the late contractor at this level, he has been dismissed and a new party engaged. I am hoping they will do much better. The mid-level north has been advanced 11 feet 9 inches, or 109 feet 6 inches from the shaft. The quartz is 2 feet 9 inches wide, but this week it assays only about 5 dwt. of gold per ton. The winze in the bottom of this level has been sunk 9 feet, or 12 feet below the level. The quartz is 2 feet 6 inches wide, and assays 5 dwt. 2 grains of gold per ton. The south level in the western part (referred to in my last report) has been extended 6 feet, or 14 feet from the winze. The quartz varies from 3 feet to 1 foot 3 inches wide, and assays 4 dwt. of gold per ton. The two stopes in the bottom of this level yield quartz of from 6 inches to 1 foot wide, and assay on an average 8 dwt. of gold per ton. The 350 feet level north has been driven 15 feet, or 254 feet 9 inches from the level. The end is still in dyke, but from its present appearance I think we are almost through it; we may, therefore, soon expect to meet with, and be driving on, the course of the lode again. The stopes in the bottom of this level produce quartz of from 1 foot to 1 foot 6 inches, and assay on an average 8 dwt. 5 grains of gold per ton. The quartz in the stope in the back of this level has now become too small to pay for working; this place has, therefore, been suspended. The stope in the bottom of the 350 feet level south yields quartz of from 2 to 3 feet wide, but it assays only about 4 dwt. of gold per ton. We are, however, hoping it will improve in value. We are now engaged fixing an 8 inch plunger lift at the 285 feet level, and hope shortly to get it completed to surface.—Surface. The general surface work is being proceeded with in the usual order.

**DON PEDRO.**—Maquin Mine: Monthly report, December 31. Notwithstanding the many holidays kept by the natives at Christmas time, progress has been very satisfactory. The general work which has been extracted was taken chiefly from the north section of the mine, where we are laying open a very large section of fair quality mineral. —Gold raising. North drivage at the 50. This has been driven another 7 feet in the footwall part of the lode. Our object in driving on this part of the formation is that we find the lodes are drained with greater speed thus than by driving on the hanging wall part. Therefore, the main body of mineral is standing to the eastern part of the drivage, and judging from the mineral passed through, from the 60 to the 50, we have a large body of productive mineral standing in this direction, which will be extracted by stoping operations as force permits.—Incline west. This has been continued towards the 40 fathom level in a very large and productive lode. The line of gold at this place has been somewhat fluctuating and boxwork effected of low quality, which has latterly been extracted with the general work, but the body of mineral for the last two days has greatly improved and the general work has been of a high standard. Risen for the month 7 feet.—Incline east. The lode here is also very large and general work from same is of a very fair quality. The line of gold which carries itself under the big body of mineral still maintains its size and is well defined, but at present is of rather low quality to be extracted apart, therefore it is taken away with general work. This incline is now communicated with the incline rise from the 60, which has laid open a large section of stoping ground. Since the communication has been made here the force from the rise from 60 north has been removed to the 60 east to drive south. This new drivage will be continued towards the southern boundary of No. 8 shoot, where to No. 1 line of gold should be intersected. Progress here may be somewhat slow owing to the ground being very wet, and great care has to be taken. Driven up to date 6 feet in lode of moderate quality. Boxwork extracted throughout the month from incline east and west being 32 boxes, which gave 485 oitavas of gold.—Incline shaft repairs. We have a small force constantly employed repairing where most required.—Morro de Santa Anna. No change has been met with. The drive from Bawden's shoot has been continued on the course of the lode, which is of same quality as when last reported. Driven for the month 1 fathom 4 feet 7 inches.—Gold produce for the month. Boxwork 32 boxes, gave 485 oitavas; general work 304 tons, gave 2865 oitavas; samples tacho, gave 59 oitavas.

**HARMONY GOLD.**—The following is an extract from a letter from Mr. Proctor, of the 3rd inst.:—I have been over the ground

with Mr. Stephens, the manager of Sutherland Reef, who has traced the reef previously on these farms. Before sinking a shaft he advises me to have one or two trenches cut right across the formation as there are two distinct reefs, and probably more coming in. He also advises me to cut a trench across the formation outside Potsdam farm on Munchen, and thus we shall prove the reefs across the 4 miles. Further, it will be easy to locate a place on which to sink trial incline shafts. There is no doubt that the New Reef and the Sutherland Reef both extend to Pebble, and there is no reason why they should not prove as good as at Sutherland Mine. I have decided during this summer season to concentrate all work on the line of Sutherland Reef, and by the time Sutherland Reef workings are known I shall have the reef thoroughly exposed in two or more places. This 4 miles of reef and Pebble will be worth three times the value of the preference shares in the company when opened up—i.e., if the reefs run of the same quality as the Sutherland. No man can estimate the value of these farms.

**MOUNT ZEEHAN (Tas.).**—Manager reports for week ended December 18; Argent section, main engine shaft, No. 6 lode, No. 1 level south stope. Lode 2 feet 6 inches wide. A fair amount of seconds has been sent to the mill; exact quantity will be given next week.—No. 4 lode, No. 1 level south. No. 2 winze sunk 3 feet, total 19 feet 6 inches. Lode similar to last reported. Are enabled to pick out a few bags of very good firsts.—Silver Queen section. New shaft sunk 7 feet, total 60 feet. Shall crosscut for lode as soon as opening timbers are put in.—Tributaries. At Balstrups section tributaries have raised 37 tons gossan and galena, realising £168, and netting to company £53. At Queen Extended the tributaries are sampling about 40 tons galena, which should go well. At Argent No. 2 tributary, there are about 10 tons ready for sampling. At No. 1 tributary, tributaries have made a start to pump out No. 2 shaft. Concentrator has been run 60 hours on Zaehan Montana Company's ore, crushing 192 tons seconds for 18 tons 9 cwt. concentrates, containing about 14 tons of lead and 1787 ounces of silver.

**MYSORE REEFS (Kangundy).**—Fortnightly report of Captain Scantlebury, mine agent, dated January 9: Underlie shaft. The 325 level north has been extended 19 feet, now 85 feet 6 inches from shaft. The quartz is 1 foot 9 inches wide, assaying 3 ounces 1 dwt. 9 grains of gold to the ton. Winze below 325 feet level north has been deepened 8 feet, now 17 feet 6 inches below the level. The quartz is 2 feet wide, assaying 4 ounces 16 dwts. 16 grains of gold to the ton. Rise above 325 feet level north has been put up 4 feet, now 13 feet 3 inches above the level. The quartz is 1 foot 6 inches wide, assaying 7 dwts. 11 grains of gold to the ton. Winze below 250 feet level north has been sunk 7 feet, now 17 feet below the level. The quartz is 15 inches wide, assaying 7 dwts. 11 grains of gold to the ton.—Vertical shaft. The crosscut east at the 260 feet level has been extended 15 feet 6 inches, now 38 feet from shaft. The lode is not underlying so fast as I anticipated, otherwise, we should have intersected it before this.

**MOUNT LYELL.**—The London board has received the following report from the Melbourne board for the week ending 13th December: Indicator winze, No. 2 crosscut, No. 3 tunnel. The winze has been sunk 4 feet, total 45 feet 6 inches. We are still sinking in fair grade copper pyrites. The auriferous vein of clay is small, but gives good assays for gold.—Rise over old ore winze, No. 4 tunnel. The rise has been put up 5 feet, total 96 feet. There is no change to report.—South drive, 50 feet level engine shaft, No. 4 tunnel. The drive has been advanced 3 feet, total 245 feet. The country is schist rock, somewhat harder than usual. The rise will be started this week.—North drive, 50 feet level engine shaft, No. 4 tunnel. The contractors have driven 2 feet, total 4 feet. The country is intensely hard.—No. 2 crosscut, 75 feet level engine shaft, No. 4 tunnel. Work in the stopes has been continued, and the usual quantity of rich ore broken.—No. 1 winze, No. 2 crosscut, 75 feet level engine shaft, No. 4 tunnel. Underhand stoping westward has been continued, and a little rich ore broken. The opened ground has been timbered, and everything was secure.—North drive, 100 feet level engine shaft, No. 4 tunnel. The drive has been advanced 3 feet, total 72 feet. The drive is being run alongside the pyrites.—No. 5 tunnel. The contractors have driven 10 feet, total 923 feet. The country is sandstone and conglomerate.—Ore raised, 219 bags, weighing 13 tons 13 cwt. 3 qrs., and containing 7848 ounces silver, and 3 tons 12 cwt. 3 qrs. 5 lbs. copper have been raised, sampled, and bagged.

**MYSORE GOLD.**—R. Hancock, January 9: Mining operations for the fortnight ending January 7: Rowse's shaft, 1460 feet level north of winze. This end has been driven 21 feet, making a total distance driven of 84 feet. The lode is 3 feet wide, assaying 7 dwts. 19 grains.—1460 feet level south of winze. This end has been driven on the 1st inst. 13 feet, making a total distance driven of 137 feet. The lode is 5 feet wide, assaying 5 dwts. 5 grains.—1360 feet level south of crosscut. The driving of this end was resumed on the 1st inst. Driven 8 feet, making a total distance driven of 160 feet 4 inches. The lode is 9 inches wide, assaying 2 ounces. There are two stopes in the back of this level, the average width of the lode being 1 foot 9 inches, giving an average assay of 7 dwts. 3 grains.—1360 feet level north. The lode in the stope in the back of this level is 3 feet wide, assaying 19 dwts. 14 grains.—1280 feet level north. There are five stopes in the back of this level, the average width of the lode being 5 feet 3 inches, giving an average assay of 1 ounce 1 dwt. 14 grains.—1280 feet level south. The winze in the bottom of this level has been sunk 11 feet, making a total depth of 105 feet. The sinking here has been suspended, and the machine put to drive the 1360 feet level south of crosscut to communicate with the winze. The rise in the back of this level has been put up 17 feet, making a total height of 46 feet. The lode is 3 feet wide, assaying 1 ounce 6 dwts. 3 grains. There are three stopes in the back of this level, the average width of the lode being 3 feet 6 inches, giving an average assay of 1 ounce 19 dwts. 10 grains.—1160 feet level north. There are six stopes in this level, the average width of the lode being 1 foot 8 inches, giving an average assay of 1 ounce 11 dwts. 17 grains.—1160 feet level south. This end has been driven 21 feet, making a total distance driven of 260 feet 6 inches. There is nothing here to report. The lode in the stope in the back of this level is 2 feet wide, assaying 1 ounce 3 dwts. 6 grains.—1060 feet level north-east. This end has been driven 20 feet, making a total distance driven of 550 feet.—990 feet level north. We have a pair of men engaged stripping down side in the back of this level, in which the lode is 1 foot wide, assaying 1 ounce 4 dwts. 19 grains.—890 feet level north. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 1 ounce 3 dwts. 6 grains.—890 feet level north of crosscut. This end has been driven 25 feet, making a total distance driven of 153 feet 6 inches. The lode is 4 feet wide, assaying 4 ounces.—890 feet level south. This level has been driven 25 feet, making a total distance driven of 156 feet.—780 feet level north. The lode in the stope in the back of this level is 2 feet wide, assaying 6 dwts. 12 grains.—780 feet level north, on new chute. This end has been driven 28 feet, making a total distance driven of 249 feet. The lode is 4 feet wide, assaying 1 ounce 18 dwts. 6 grains. The rise in the back of this level has been put up 7 feet, making a total height of 80 feet. The rising here has been suspended, and the machine put to rise in the back of the level 216 feet, north of crosscut; risen 4 feet. The lode is 4 feet wide, assaying 1 ounce 18 dwts. 6 grains. There are two stopes in the back of this level, the average width of the lode being 2 feet, giving an average assay of 1 ounce 13 dwts. 6 grains.—620 feet level north of crosscut. This end has been driven 4 feet 6 inches, making a total distance driven of 296 feet. The lode is 6 inches wide, assaying 2 dwts. 14 grains. There are three stopes in the back of this level, the average width of the lode being 2 feet 8 inches, giving an average assay of 3 dwts. 1 grain.—620 feet level south of crosscut. The lode in the stope in the back of this level is 2 feet 6 inches wide, assaying 11 dwts. 17 grains. Crocker shaft has been sunk 20 feet 6 inches, making a total depth of 27 feet 6 inches below the 620 feet level. The lode is 2 feet 6 inches wide, assaying 5 dwts. 5 grains.—400 feet level north. There are five stopes in the back of this level, the average width of lode being 3 feet, giving an average assay of 14 dwts. 2 grains.—296 feet level north. There are three stopes in the back of this level, the average width of the lode being 1 foot 10 inches, giving an average assay of 19 dwts. 14 grains.—296 feet level north.

There are four stopes in the back of this level, the average width of the lode being 1 foot 6 inches, giving an average assay of 1 ounce 7 dwts. 9 grains.—Taylor's shaft, 466 feet level north. The lode in the stope in the back of this level is 3 feet 6 inches wide, assaying 1 ounce 3 dwts. 6 grains.—Gilbert's shaft, 520 feet level north. The lode in the stope in back of this level is 2 feet wide, assaying 15 dwts. 1 grain.—520 feet level south. The lode in the stope in the back of this level is 2 feet wide, assaying 5 dwts. 5 grains.—430 feet level north. There are two stopes in the back of this level, the average width of the lode being 1 foot 10 inches, giving an average assay of 1 ounce 10 dwts. 21 grains.—360 feet level north. The lode in the stope in the bottom of this level is 1 foot 6 inches wide, assaying 15 dwts. 15 grains.—290 feet level north. There are three stopes in this level, the average width of the lode being 2 feet 7 inches, giving an average assay of 1 ounce 4 dwts. 13 grains.—180 feet level south. There are three stopes in the back of this level, the average width of the lode being 3 feet 4 inches, giving an average assay of 12 dwts. 17 grains.—Tennant's shaft. This shaft has been sunk 6 feet 6 inches, making a total depth of 87 feet 8 inches below the 600 feet level. The lode is 7 inches wide, assaying 5 dwts. 5 grains. The sinking was hindered for a few days owing to a breakage to the pumping engine.—520 feet level north. There are two stopes in the bottom of this level, the average width of the lode being 2 feet 9 inches, giving an average assay of 9 dwts. 2 grains.—290 feet level south, north of crosscut. The lode in the stope in the bottom of this level is 2 feet wide, assaying 1 ounce 0 dwts. 21 grains.—Schaw's shaft, 450 feet level north of crosscut. There are two stopes in the back of this level, the average width of the lode being 1 foot 3 inches, giving an average assay of 1 ounce 4 dwts. 12 grains.—450 feet level north, south of crosscut. We have started to drive south on the eastern part of the lode 100 feet south of the crosscut, driven 2 feet 6 inches. The lode is 2 feet 6 inches wide, assaying 6 dwts. 12 grains. The winze in the bottom of this level has been sunk 7 feet, making a total depth of 132 feet 6 inches. The lode is 1 foot wide, assaying 5 dwts. 5 grains. There are three stopes in the back of this level, the average width of the lode being 1 foot 8 inches, giving an average assay of 10 dwts. 10 grains.—McTaggart's shaft. This shaft has been sunk 6 feet 3 inches, making a total depth of 49 feet 3 inches below the 550 feet level. There is nothing here to report.—550 feet level north. This was started on the 1st instant. Driven 6 feet. There is nothing here to report. The crosscut west from the shaft at the 550 has been driven 13 feet 6 inches, making a total distance driven of 21 feet 6 inches.—450 feet level south. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 4 dwts. 13 grains.—320 feet level north. The lode in the stope in the back of this level is 1 foot wide, assaying 1 ounce 21 grains.—320 feet level north, crosscut west. This end has been driven 17 feet, making a total distance driven of 226 feet.—Crosscut east. This end has been driven 2 feet 6 inches, making a total distance driven of 287 feet.—Ribblesdale's shaft. This shaft has been sunk 3 feet, making a total depth of 501 feet. The sinking has been greatly hindered by water.—1060 feet. This has been put up 6 feet 6 inches, making a total height of 80 feet.—Williams' shaft, crosscut east from the 173. This has been driven 4 feet 6 inches, making a total distance driven of 98 feet. Health good.

**NEW PACHUCA.**—Copy of report received from the company's manager, Mr. Robert Smart, January 7: I herewith give you a resume of the work done in San Miguel del Tajo since we recommenced sinking. Sinking was resumed on April 21st, 1894, and continued until December 22nd, at which date we attained a depth of 191-75 feet, the total sinking since April 21st being 84-15 metres, an average of 2-33½ metres per week. The total cost was \$19,423-53, giving an average of \$230-90 per metre. The cost has been somewhat in excess of my estimate, and this is accounted for by the fact that the ground changed considerably shortly after we began to sink, making it necessary to put in sets of timber almost throughout the entire lift. 46 sets of 10 by 10 pine were put in position, and the cost of fixing these, together with the cost of the timber itself, which is high in Mexico, has added materially to the cost of sinking. At the 105 metre level I tried, by means of dams, to hold back the water in the crosscuts and pump it from there to the surface, but, owing to the nature of the ground, and no doubt to the heavy blasting, the water percolates through into the shaft, making it necessary to haul the entire drainage to the surface by means of "botas" made of skin. This has added a great deal to the cost, as for this extra water much more work would have been done it, taking the contractor at least six hours in the 24 to keep the water out of the shaft.—Engine, &c. Several repairs and alterations have been made to the engine during the year, new piston rings having been fixed and new lubricators placed on the cylinders and some of the bearings. The engine and boiler have been thoroughly overhauled from time to time, and both are in first-class condition, the boiler working on an average of 65 lbs. pressure, which is 35 lbs. below the standard. The old cable being very much worked and some part of it unsafe to work, I found it necessary to purchase a new length of rope. I got 400 feet and had it spliced on to the old cable and I thought this would be amply sufficient to last us through the work in hand, but owing to the great wear and tear in the old rope I found it necessary to splice on a further 400 feet. On December 31 we started to open up the plat preparatory to driving to the south lodes. To cut lode marked No. 1 south on the plan we will have a distance of 70 metres to drive, and to cut No. 2 about 94 metres. Without accident No. 1 should be cut in about 18 weeks, and No. 2 in about 25 weeks averaging 3-75 metres per week. At the 105 metre level No. 1 lode is 8 feet wide, and is a good live lode assaying in places 1 mare (8 ounces). No. 2 lode is 14 feet wide containing spots of metal and has given assays of 3 mares (24 ounces). If there is any virtue in this property whatever this lode should prove of considerable value at our present depth, though we are still short of the depth at which Santa Gertrudis and El Barron have obtained their rich metal. Contrary to my expectations, we have not seen anything of the Canterbury lode in the shaft, though from the nature of the ground we passed through in sinking I do not think it is very far from the shaft. I should, therefore, recommend driving a little distance to the north—say 15 metres—in order to try and cut this lode, which is 16 feet wide at the surface. About 150 metres to the west of us, where the Real del Monte Company sett adjoins San Miguel, the company sunk a prospect shaft on this lode 25 metres and got 20 mare (160 ounces) metal from it. The shaft was, however, abandoned, the reason being that the lode runs entirely out of their sett, making it valueless to them. I am quite sure that this property will ultimately prove of great value, it being in a very rich neighbourhood. I regret that no work whatever has been done on the Santa Inez Carretera sett, through which the El Barron lode runs. It has always been my opinion that this is the best sett owned by the company, and I think that had the old La Virgin been opened up and sunk a further 100 metres a good result would have followed, as the sinking of this shaft would intersect the junction of the El Barron and Carretera lodes, both of which are very rich. The Santa Gertrudis Company has within the last few months purchased several sets north-west and south-west of us, and their boundary line now adjoins San Miguel. At their last annual meeting it was proposed to sink a main shaft on their Refugio sett, which immediately adjoins San Miguel, and erect a hacienda or mill for reducing their ore. Should they do this it will greatly increase the value of our property as the Santa Gertrudis Company, managed by Captain Frank Rule, is one of the most successful silver mining companies in the world. On the north-east the Real del Monte Company have become possessed of new property, and on the east the Miagro Company, at the head of which is Don Guillermo H. Phillips, a shareholder in this company, has taken up new sets, so that we are now almost entirely surrounded. This all goes to prove that the district

**NUNDYDROOG.**—Thomas Richards, January 9: Report for the fortnight ending January 5: Taylor's shaft has been sunk 1 foot, total depth 4 feet below the 160 feet level. Lode 1 foot wide, assaying 7 dwts. 12 grains. The 1160 south has been driven 9 feet 6 inches, total distance 9 feet 6 inches. Lode 1 foot wide, assaying 5 dwts. The 1160 north has been driven 15 feet, total distance 15 feet. Lode 1 foot 6 inches wide, assaying 6 dwts. 6 grains. The 840 south has been driven 14 feet 6 inches, total distance 34 feet. Lode of no value. The 840 south from crosscut east has been driven 2 feet 6 inches, total distance 10 feet; suspended. The 840 north from crosscut east has been driven 1 foot 6 inches, total distance 1 foot 6 inches. Lode 3 inches, assaying 2 dwts. 12 grains. In three stopes in the back of the 760 north the lode averages 3 feet in width, and 11 dwts. 6 grains in assay value. The lode in the stopes in the bottom of the 680 north is 2 feet wide, and assays 10 dwts. The 600 north has been driven 12 feet, total 412 feet. Lode 3 inches wide, assaying 10 dwts. The lode in the stopes in the back of this level is 2 feet wide, and assays 1 ounce 1 dwt. 6 grains. In three stopes in the bottom of the 520 north the lode averages 2 feet 4 inches in width and 14 dwts. 14 grains in assay value. The 520 feet level has been driven north on a crosscourse from the crosscut east near main shaft 13 feet, total distance 13 feet. As this crosscourse carries a trace of gold, we hope by following it to find the lode which has evidently been "faulted" in this part of the property. An intermediate drivage has been commenced just below the 430 feet level north with the object of effecting a communication with the rise from the 520 north in which there is some payable quartz. At the point of starting this drivage in the old stope the lode is 3 inches wide, and assays 3 dwts. 18 grains. The lode in the stope in the bottom of the 370 north is 1 foot 6 inches wide, and assays 17 dwts. 12 grains. In the 300 north the branch of quartz in the footwall is now 1 foot wide, and assays 5 dwts. Main shaft has been sunk 8 feet, total depth 28 feet below the 1000 feet level, the part of the lode carried being of no assay value. The 1000 north rise has been put up 11 feet 6 inches, total height 75 feet; lode 2 feet 6 inches wide, assaying 1 ounce 10 dwts. The 920 north has been driven 11 feet, total distance 161 feet; lode disordered and of no assay value. The lode in the stope in the back of this level south is 4 feet wide, and assays 1 ounce of gold per ton. The 680 north has been driven 15 feet, total distance 335 feet. Lode 6 inches wide, containing a trace of gold. Crosscut east from the 680 north has been extended 17 feet 6 inches, total distance 231 feet. A few stringers of quartz have recently been intersected.—Kennedy's shaft. The crosscut west at the 600 feet level has been driven 6 feet 6 inches, total distance 6 feet 6 inches. Judging from the underlie of the lode at the 520 feet level a crosscut of from 40 to 50 feet will be required to reach it at this depth—the 600 feet level. The 520 south has been driven 17 feet, total distance 363 feet. Lode 1 foot 6 inches wide, assaying 7 dwts. 12 grains. The 520 south rise (at 330 feet south from Kennedy's shaft) has been put up 6 feet, total height 6 feet. Lode 3 feet wide, assaying 2 ounces 1 dwt. 6 grains. The 520 north has been driven 18 feet 6 inches, total distance 367 feet 6 inches. Lode 1 foot 6 inches wide, assaying 8 dwts. 18 grains. The 520 north rise (at 309 feet north from Kennedy's shaft) has been put up 14 feet, total height 14 feet. Lode 3 feet 6 inches, assaying 10 dwts. The 440 south has been driven 18 feet, total distance 716 feet. Lode 3 inches wide, assaying 2 dwts. 12 grains. The rise in the back of this level has been put up 12 feet, total height 82 feet. This is a sufficient height for communication with the 370 south, which has not yet reached this point. The 370 south has been driven 19 feet, total distance 497 feet. Lode 1 foot 6 inches wide, assaying 2 ounces 8 dwts. 18 grains. The lode in the stope in bottom of the 370 north is 6 feet wide, and assays 2 ounces 2 dwts. 12 grains. In three stopes in the back of this level the lode averages 2 feet 6 inches in width, and 2 ounces 4 dwts. 4 grains in assay value. Crosscut west from the 370 north has been extended 17 feet, total distance 207 feet. A few stringers of quartz have been met with. The 300 south has been driven 17 feet 6 inches, total distance 294 feet. Lode 6 inches wide, assaying 4 dwts. 9 grains. In the stope in the back of this level the lode is 2 feet wide, and assays 10 dwts. In the 300 north rise and stope the lode is 2 feet 6 inches wide, and assays 2 dwts. 12 grains. The 230 north has been driven 19 feet 6 inches, total distance 264 feet. Lode 6 inches wide, assaying 5 dwts. The 160 north has been driven 5 feet, total distance 136 feet 6 inches. Lode 6 inches, assays 3 dwts. 18 grains.—Old mill samples. Rough quartz through stonebreaker 1 ounce, smalls 18 dwts. 18 grains.—New mill samples. Rough quartz through stonebreaker 1 ounce 2 dwts. 12 grains, smalls 17 dwts. 12 grains.

**NINE REEFS.**—Fortnightly report of Captain John Woolcock, dated January 9: Vyvyan's shaft, 220 feet level. There is very little change in the stopes working in the back and bottom of the level since my report of the 26th ult. In the stope working in the bottom to the south of shaft, the part of the lode taken is from 2½ to 3 feet wide, carrying quartz against the hanging wall, varying in width from 6 inches to 1 foot; and a sample broken from this yesterday gave by assay 2 ounces of gold per ton. The ground stope for December was 8 fathoms 2 inches. The lode formation in the stope in the back of the level is from 4½ to 5 feet wide, carrying quartz against the footwall 6 inches wide, and this by assay is worth 1 ounce 17 dwts. 6 grains of gold per ton. Ground stope for December 7 fathoms 2 feet 7 inches. In the No. 3 stope working to the north of footway winze the lode is 5 feet wide, yielding quartz from 6 to 10 inches wide, and worth by assay 1 ounce 13 dwts. 4 grains of gold per ton. Ground stope, 5 fathoms 4 feet 6 inches. The 145 feet level south of shaft. We have two stopes working in the back at 170 feet from shaft. In the No. 1 stope the quartz has widened, and is now from 1 foot to 15 inches wide, and worth by assay 1 ounce 8 dwts. 10 grains of gold per ton. The quartz leader in the No. 2 stope is 8 inches wide, and worth by assay 18 dwts. of gold per ton. The ground taken out in the two stopes for three weeks is 4 fathoms 5 feet 3 inches; the men also rose 2 feet in the back of the stope, making the height for the No. 1 stope 18 feet and the No. 2 stope 8 feet.—South shaft. This shaft has been further deepened 7 feet 3 inches, making a depth from surface of 203 feet, and below the 145 feet level, 58 feet. The lode at present is not quite so wide owing to the hanging wall becoming very hard and underlying west at a less angle, which has pinched the lode for the time, but I think it will soon open out again. It is now 3½ feet wide, of a most promising character for a width of 20 inches against the footwall. It is composed of nice veins of quartz and a soft schist, the hanging wall part is of a harder nature. We are now getting into the hard and settled rock, and I hope the lode will soon improve in value. A sample from the footwall part to-day gave by assay 7 dwts. 10 grains of gold per ton. We have 8 feet further to sink for the required depth of our second level, which I hope to accomplish in a fortnight, after which we shall drive north and south from shaft on the course of the lode.—145 feet level north. The winze in the bottom of this level at 100 feet from shaft has been sunk 9 feet 6 inches. This winze is being sunk on the hanging wall part of the lode taken for a width of 3 feet, of which 2½ feet is a dark blue quartz highly stained with oxide of iron. A sample broken from this yesterday gave by assay 2 dwts. 8 grains of gold per ton. Although the ore at present is of low grade, there is every probability that it will much improve before the next level is reached, seeing that it will intersect the more productive lode passed through in the 145 feet level to the south of this point.—Prospecting. McTaggart's lode, No. 1 shaft. The 100 feet level to the north of this shaft has been driven 5 feet 9 inches, total distance from shaft 43 feet 9 inches. The lode in the present end is 20 inches wide, and of a most promising character. A sample yesterday gave by assay 2 dwts. 4 grains of gold per ton, but I hope it will soon further improve. The crosscut driving west at this level south of shaft has been advanced 6 feet 2 inches, total distance 19 feet. We have met with a little carbonate of lime and patches of quartz, but nothing regular, or of sufficient value to notice. There has been very little sunk in the No. 5 shaft in the past fortnight, owing to a great increase of water, which, I am of opinion, must be filtering through a floor from the Malleson lode. One party of coolies left, and we have now another party trying it, but I am afraid that we shall be obliged to stop

the sinking for a time.—Surface. There is nothing under this head that calls for special remark. The mill and machinery throughout the mine ore working satisfactorily.—Health. The general health of the camp continues good.

**SUTHERLAND REEF.**—Under date January 7, Mr. Procter writes from the mine as follows: I am astonished at the work that has been done since my visit here last year. Mr. Stephens is now down to the 310 feet level, and his shaft timbered to that depth. At this level a chamber is being cut to facilitate hauling, and on New Year's Day they began to drive east and west on this level. The lode here is about 3 feet wide at depth, and is becoming more vertical. The walls are clearly defined, and are out of disturbed ground. The stone at this level is very good. The lode will go down, no doubt, to any depth. The battery is being pushed along with great rapidity, and you may expect crushing to commence the first week in February. The machinery is first-class, and the engine will easily run 40 head of stamps. With his hauling gear he can raise 400 tons per 24 hours. When the 310 feet level is opened up he will have six faces to work on. In fact, what he takes out of his dives and shaft as he goes deeper will almost keep 20 stamps running without stopping. The mine looks extremely well, and we have an exceedingly valuable property. Soon there will be a lot of work done down here on the different reefs, and our mine will give a great impetus to everything in the Low Country, and with the advent of the railways the country will boom.

**SUNBURST.**—The manager under date December 15 writes as follows:—The tribute profit received for the fortnight amounted to £3 12s. 8d.—The No. 1 East Sunburst. Tributaries have just completed a crushing, which went over 3 ounces to the ton, and at present they have a very fine face of stone to work on. I am anxious that we should do some prospecting on this side, as there appears to be a very good prospect of getting on to payable stone in that part of the ground; but, of course, we can do nothing until more funds are available to wipe off our liability, and give us something to work it. It is a pity the home shareholders do not subscribe better for the shares, and give us an opportunity to develop the property.

**TOLIMA.**—The directors have received advices by the mail of the 25th January, from their mines, of which the following is an abstract:—Friar estimated November returns (150 tons) silver, valued at 29d; per ounce, £6435 14s. 5d.; cost, £4072 8s. 2d.; profit, £2363 6s. 3d. The underground agent reports 116 fathoms 1 foot 7 inches of ground expended, of which 94 fathoms 2 feet 4 inches were productive, leaving of unproductive ground 21 fathoms 5 feet 3 inches. Under date of the 18th December, the superintendent reports a maintenance of the improvement reported previously in the east prospecting winze, No. 1, sunk from the 140 fathom level, where the lode yielded high-grade mineral at the rate of 2 tons to the fathom, with a tendency to still further improvement. The superintendent adds that every effort is being made to reach the 150 fathom level by the end of the year. The 120 fathom east end, after giving during November 2 tons of high-grade mineral per fathom, was poor at the above date, but a winze sunk some distance behind the present end in this level was going down on a body of ore yielding 2 tons to the fathom. The object of this winze is to explore in depth the body of mineral cut in driving the 120 fathom level. The 90 fathom east is being driven on the main lode towards the point where, it is hoped, it effects a junction with the Welton lode in which latter lode work is temporarily discontinued at the 90. The water supply is reported satisfactory, and the preliminary arrangements commenced for extending the Santa Rossa Ditch to Pompona.—Engine shaft. This was sunk 11½ feet by 10 men on company account, and is now holed to the 140 fathom crosscut. 140 fathom west end north branch was driven 10½ feet by two men at £85 per fathom, and the lode is without change to note. 140 fathom east end was driven 9½ feet by two men at £80 per fathom, thus being 201 feet as total east of the west winze, and the lode yet keeps poor. 140 fathom crosscut to engine shaft was driven 4 feet by two men at £90 per fathom, and is holed to the engine shaft. 140 fathom east end north branch was driven 4½ feet by two men on company account. It is situated directly east of the crosscut to the engine shaft, and same yields some good bits of mineral. 140 fathom east winze No. 1 was sunk 15 feet by eight men at \$135 per fathom, thus being 46½ feet as total depth. The lode has declined in yield, and has yielded on an average 2 tons of high grade mineral per fathom. To date of writing the general appearances of the lode in the bottom of the winze are in favour of an improvement. 130 fathom west end was driven 10½ feet by two men at £85 per fathom, was poor at the above date, but a winze sunk some distance behind the present end in this level was going down on a body of ore yielding 2 tons to the fathom. The object of this winze is to explore in depth the body of mineral cut in driving the 130 fathom level. The 90 fathom east is being driven on the main lode towards the point where, it is hoped, it effects a junction with the Welton lode in which latter lode work is temporarily discontinued at the 90. The water supply is reported satisfactory, and the preliminary arrangements commenced for extending the Santa Rossa Ditch to Pompona.—Engine shaft. This was sunk 11½ feet by 10 men on company account, and is now holed to the 140 fathom crosscut. 140 fathom west end north branch was driven 10½ feet by two men at £85 per fathom, and the lode is without change to note. 140 fathom east end was driven 9½ feet by two men at £80 per fathom, thus being 201 feet as total east of the west winze, and the lode yet keeps poor. 140 fathom crosscut to engine shaft was driven 4 feet by two men at £90 per fathom, and is holed to the engine shaft. 140 fathom east end north branch was driven 4½ feet by two men on company account. It is situated directly east of the crosscut to the engine shaft, and same yields some good bits of mineral. 140 fathom east winze No. 1 was sunk 15 feet by eight men at \$135 per fathom, thus being 46½ feet as total depth. The lode has declined in yield, and has yielded on an average 2 tons of high grade mineral per fathom. To date of writing the general appearances of the lode in the bottom of the winze are in favour of an improvement. 130 fathom west end was driven 10½ feet by two men at £85 per fathom, was poor at the above date, but a winze sunk some distance behind the present end in this level was going down on a body of ore yielding 2 tons to the fathom. The object of this winze is to explore in depth the body of mineral cut in driving the 130 fathom level. The 90 fathom east is being driven on the main lode towards the point where, it is hoped, it effects a junction with the Welton lode in which latter lode work is temporarily discontinued at the 90. The water supply is reported satisfactory, and the preliminary arrangements commenced for extending the Santa Rossa Ditch to Pompona.—Engine shaft. This was sunk 11½ feet by 10 men on company account, and is now holed to the 140 fathom crosscut. 140 fathom west end north branch was driven 10½ feet by two men at £85 per fathom, and the lode is without change to note. 140 fathom east end was driven 9½ feet by two men at £80 per fathom, thus being 201 feet as total east of the west winze, and the lode yet keeps poor. 140 fathom crosscut to engine shaft was driven 4 feet by two men at £90 per fathom, and is holed to the engine shaft. 140 fathom east end north branch was driven 4½ feet by two men on company account. It is situated directly east of the crosscut to the engine shaft, and same yields some good bits of mineral. 140 fathom east winze No. 1 was sunk 15 feet by eight men at \$135 per fathom, thus being 46½ feet as total depth. The lode has declined in yield, and has yielded on an average 2 tons of high grade mineral per fathom. To date of writing the general appearances of the lode in the bottom of the winze are in favour of an improvement. 130 fathom west end was driven 10½ feet by two men at £85 per fathom, was poor at the above date, but a winze sunk some distance behind the present end in this level was going down on a body of ore yielding 2 tons to the fathom. The object of this winze is to explore in depth the body of mineral cut in driving the 130 fathom level. The 90 fathom east is being driven on the main lode towards the point where, it is hoped, it effects a junction with the Welton lode in which latter lode work is temporarily discontinued at the 90. The water supply is reported satisfactory, and the preliminary arrangements commenced for extending the Santa Rossa Ditch to Pompona.—Engine shaft. This was sunk 11½ feet by 10 men on company account, and is now holed to the 140 fathom crosscut. 140 fathom west end north branch was driven 10½ feet by two men at £85 per fathom, and the lode is without change to note. 140 fathom east end was driven 9½ feet by two men at £80 per fathom, thus being 201 feet as total east of the west winze, and the lode yet keeps poor. 140 fathom crosscut to engine shaft was driven 4 feet by two men at £90 per fathom, and is holed to the engine shaft. 140 fathom east end north branch was driven 4½ feet by two men on company account. It is situated directly east of the crosscut to the engine shaft, and same yields some good bits of mineral. 140 fathom east winze No. 1 was sunk 15 feet by eight men at \$135 per fathom, thus being 46½ feet as total depth. The lode has declined in yield, and has yielded on an average 2 tons of high grade mineral per fathom. To date of writing the general appearances of the lode in the bottom of the winze are in favour of an improvement. 130 fathom west end was driven 10½ feet by two men at £85 per fathom, was poor at the above date, but a winze sunk some distance behind the present end in this level was going down on a body of ore yielding 2 tons to the fathom. The object of this winze is to explore in depth the body of mineral cut in driving the 130 fathom level. The 90 fathom east is being driven on the main lode towards the point where, it is hoped, it effects a junction with the Welton lode in which latter lode work is temporarily discontinued at the 90. The water supply is reported satisfactory, and the preliminary arrangements commenced for extending the Santa Rossa Ditch to Pompona.—Engine shaft. This was sunk 11½ feet by 10 men on company account, and is now holed to the 140 fathom crosscut. 140 fathom west end north branch was driven 10½ feet by two men at £85 per fathom, and the lode is without change to note. 140 fathom east end was driven 9½ feet by two men at £80 per fathom, thus being 201 feet as total east of the west winze, and the lode yet keeps poor. 140 fathom crosscut to engine shaft was driven 4 feet by two men at £90 per fathom, and is holed to the engine shaft. 140 fathom east end north branch was driven 4½ feet by two men on company account. It is situated directly east of the crosscut to the engine shaft, and same yields some good bits of mineral. 140 fathom east winze No. 1 was sunk 15 feet by eight men at \$135 per fathom, thus being 46½ feet as total depth. The lode has declined in yield, and has yielded on an average 2 tons of high grade mineral per fathom. To date of writing the general appearances of the lode in the bottom of the winze are in favour of an improvement. 130 fathom west end was driven 10½ feet by two men at £85 per fathom, was poor at the above date, but a winze sunk some distance behind the present end in this level was going down on a body of ore yielding 2 tons to the fathom. The object of this winze is to explore in depth the body of mineral cut in driving the 130 fathom level. The 90 fathom east is being driven on the main lode towards the point where, it is hoped, it effects a junction with the Welton lode in which latter lode work is temporarily discontinued at the 90. The water supply is reported satisfactory, and the preliminary arrangements commenced for extending the Santa Rossa Ditch to Pompona.—Engine shaft. This was sunk 11½ feet by 10 men on company account, and is now holed to the 140 fathom crosscut. 140 fathom west end north branch was driven 10½ feet by two men at £85 per fathom, and the lode is without change to note. 140 fathom east end was driven 9½ feet by two men at £80 per fathom, thus being 201 feet as total east of the west winze, and the lode yet keeps poor. 140 fathom crosscut to engine shaft was driven 4 feet by two men at £90 per fathom, and is holed to the engine shaft. 140 fathom east end north branch was driven 4½ feet by two men on company account. It is situated directly east of the crosscut to the engine shaft, and same yields some good bits of mineral. 140 fathom east winze No. 1 was sunk 15 feet by eight men at \$135 per fathom, thus being 46½ feet as total depth. The lode has declined in yield, and has yielded on an average 2 tons of high grade mineral per fathom. To date of writing the general appearances of the lode in the bottom of the winze are in favour of an improvement. 130 fathom west end was driven 10½ feet by two men at £85 per fathom, was poor at the above date, but a winze sunk some distance behind the present end in this level was going down on a body of ore yielding 2 tons to the fathom. The object of this winze is to explore in depth the body of mineral cut in driving the 130 fathom level. The 90 fathom east is being driven on the main lode towards the point where, it is hoped, it effects a junction with the Welton lode in which latter lode work is temporarily discontinued at the 90. The water supply is reported satisfactory, and the preliminary arrangements commenced for extending the Santa Rossa Ditch to Pompona.—Engine shaft. This was sunk 11½ feet by 10 men on company account, and is now holed to the 140 fathom crosscut. 140 fathom west end north branch was driven 10½ feet by two men at £85 per fathom, and the lode is without change to note. 140 fathom east end was driven 9½ feet by two men at £80 per fathom, thus being 201 feet as total east of the west winze, and the lode yet keeps poor. 140 fathom crosscut to engine shaft was driven 4 feet by two men at £90 per fathom, and is holed to the engine shaft. 140 fathom east end north branch was driven 4½ feet by two men on company account. It is situated directly east of the crosscut to the engine shaft, and same yields some good bits of mineral. 140 fathom east winze No. 1 was sunk 15 feet by eight men at \$135 per fathom, thus being 46½ feet as total depth. The lode has declined in yield, and has yielded on an average 2 tons of high grade mineral per fathom. To date of writing the general appearances of the lode in the bottom of the winze are in favour of an improvement. 130 fathom west end was driven 10½ feet by two men at £85 per fathom, was poor at the above date, but a winze sunk some distance behind the present end in this level was going down on a body of ore yielding 2 tons to the fathom. The object of this winze is to explore in depth the body of mineral cut in driving the 130 fathom level. The 90 fathom east is being driven on the main lode towards the point where, it is hoped, it effects a junction with the Welton lode in which latter lode work is temporarily discontinued at the 90. The water supply is reported satisfactory, and the preliminary arrangements commenced for extending the Santa Rossa Ditch to Pompona.—Engine shaft. This was sunk 11½ feet by 10 men on company account, and is now holed to the 140 fathom crosscut. 140 fathom west end north branch was driven 10½ feet by two men at £85 per fathom, and the lode is without change to note. 140 fathom east end was driven 9½ feet by two men at £80 per fathom, thus being 201 feet as total east of the west winze, and the lode yet keeps poor. 140 fathom crosscut to engine shaft was driven 4 feet by two men at £90 per fathom, and is holed to the engine shaft. 140 fathom east end north branch was driven 4½ feet by two men on company account. It is situated directly east of the crosscut to the engine shaft, and same yields some good bits of mineral. 140 fathom east winze No. 1 was sunk 15 feet by eight men at \$135 per fathom, thus being 46½ feet as total depth. The lode has declined in yield, and has yielded on an average 2 tons of high grade mineral per fathom. To date of writing the general appearances of the lode in the bottom of the winze are in favour of an improvement. 130 fathom west end was driven 10½ feet by two men at £85 per fathom, was poor at the above date, but a winze sunk some distance behind the present end in this level was going down on a body of ore yielding 2 tons to the fathom. The object of this winze is to explore in depth the body of mineral cut in driving the 130 fathom level. The 90 fathom east is being driven on the main lode towards the point where, it is hoped, it effects a junction with the Welton lode in which latter lode work is temporarily discontinued at the 90. The water supply is reported satisfactory, and the preliminary arrangements commenced for extending the Santa Rossa Ditch to Pompona.—Engine shaft. This was sunk 11½ feet by 10 men on company account, and is now holed to the 140 fathom crosscut. 140 fathom west end north branch was driven 10½ feet by two men at £85 per fathom, and the lode is without change to note. 140 fathom east end was driven 9½ feet by two men at £80 per fathom, thus being 201 feet as total east of the west winze, and the lode yet keeps poor. 140 fathom crosscut to engine shaft was driven 4 feet by two men at £90 per fathom, and is holed to the engine shaft. 140 fathom east end north branch was driven 4½ feet by two men on company account. It is situated directly east of the crosscut to the engine shaft, and same yields some good bits of mineral. 140 fathom east winze No. 1 was sunk 15 feet by eight men at \$135 per fathom, thus being 46½ feet as total depth. The lode has declined in yield, and has yielded on an average 2 tons of high grade mineral per fathom. To date of writing the general appearances of the lode in the bottom of the winze are in favour of an improvement. 130 fathom west end was driven 10½ feet by two men at £85 per f

## PROVINCIAL SHARE MARKETS.

## THE CORNISH MINE SHARE MARKET.

**M** R. SAMUEL JOHN DAVEY, Dealer in Cornish Mine Shares, Redruth, Cornwall, reports under date of January 31 (4 o'clock) as follows:—We have had a moderately steady market this week, and a little enquiry for the leading shares. Today market is unchanged. Following are quotations:—Blue Hills,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Carn Brea,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Cook's Kitchen,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Dolcoath,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; East Pool,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Killifreth, 18s. to 20s.; South Condurrow,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; South Crofty,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; South Wheal Frances,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Tincroft,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; West Frances,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; West Kitty, 5s. to 5s.; Wheal Agar,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Wheal Basset,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Wheal Grenville, 11s. to 12s.; Wheal Kitty (St. Agnes),  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Polberro,  $\frac{1}{2}$  to 1.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (January 31) as follows:—The mining market has been steady throughout the week, and shares are firmer, tin fluctuating, but the sale of ore on Tuesday was very satisfactory at an average rise of 3s. per ton in comparison with the last. Closing prices:—Blue Hills, 2s. 6d. to 3s.; Carn Brea, 2 to 2s.; Cook's Kitchen, 1 to 1s.; Devon Consols,  $\frac{1}{2}$  to 1s.; Dolcoath, 4s. to 6s.; East Pool, 4s. to 5s.; Killifreth, 18s. to 22s. 6d.; Levant, 2s. to 4s.; Polberro,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; South Crofty,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Tincroft, 4s. to 5s.; West Kitty, 5s. to 5s.; Wheal Basset, 1s. to 1s.; Wheal Grenville, 11s. to 12s.

Messrs. ABBOTT AND WICKETT, Stock and Share Brokers and Mining Share Dealers, Redruth, write under date of Thursday, January 31:—There has been a fair amount of business in the Cornish Share Market during the past week, and prices have fluctuated a good deal, closing firm. Dealings are considerably influenced by the movements in tin, and steady recovery in the same would probably lead to rapid rise in prices. Carn Breas, Dolcoaths, and Tincrofts have been chiefly dealt in, and a good many have changed hands. Quotations herewith:—Blue Hills,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Carn Brea, 1s. to 2s.; Cook's Kitchen,  $\frac{1}{2}$  to 1s.; Dolcoath, 4s. to 6s.; East Pool, 4s. to 5s.; Killifreth, 18s. to 21s.; Polberro,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; South Condurrow,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; South Crofty,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Tincroft, 4s. to 5s.; West Frances,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; West Kitty, 5s. to 5s.; Wheal Agar,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Wheal Basset, 1s. to 2s.; Wheal Grenville, 11s. to 12s.; Wheal Kitty,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Tin, £603.

## MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write January 31st (noon):—A persistent wave of depression has been over the market during the whole of the past week, or, at any rate, the greater portion of it. The settlement of a long account, and that a busy one, has, of course, conducted to restriction of fresh business, and this has, doubtless, contributed to the downward tendency of prices. Another cogent feature in the situation is the position of monetary affairs in the United States. This, constituting a definite weakness in Yankee rails, has imparted a similar weakness all round, and brought in sales to take profits on recent advances, this, again, of course, helping the downward wave. Added to all these influences, local matters also have come in, and these are not quite all in the same direction, daily movements may be the best method to report after promising as above. On Friday last realisations began, and prices all round the railway markets fell away somewhat. Amongst Canadians, however, Grand Trunks were not affected, and prices herein remained unchanged. Mexicans were an exception to the rule also, and those were rather firmer. Saturday produced but little business as usual, and though profits were still being taken where bid, the undertone was fairly good. Americans were poor on New York depression. Monday showed home rails rather on the better side, but Metropolitan Districts were an exception, as they were a bit easier from Saturday's prices. The other markets in rails were dull with prices still tending easy. Tuesday was "carrying-over" day, and as the account proved large, attention was acquired for this first operation of a settlement. Metropolitan Districts improved a little, as also did Midlands; but other home rails gave way again to some little extent. Americans came bad from New York, and the drop was fully reflected here, prices going lower all along the list. In Canadians Trunks held up fairly well. Mexicans were rather better on a £900 traffic increase. Wednesday brought in some depressing influences on home rails. Traffics, probably owing to the severe weather, were poor, and, again, the dividend announcement on the Great Northern did not have any tendency to counteract the lowering effect of traffics. This dividend was distinctly a disappointment to the market, and no doubt, as usual, more was made of the disappointment than the actual fact might warrant. However, it gave a further impetus to the already depressed market, and figures fell away yet again. New York again showed up badly, and though prices here did not in all cases follow quite so much as might have been expected, some further severe falls were marked in Americans: Grand Trunk issues were not changed to any extent, but Canadian Pacifics were the turn lower on the day. Mexicans unaltered. This morning home rails opened without much actual change from last night, and, just at first, there appeared some little hardening here and there. This was soon lost, however, and lower prices all round the Home rails list were quickly marked, these lower prices obtaining up to time of writing. Change during day will be chronicled later. Consols have quickly fallen from their high estate, the drop on the week amounting to 1. Colonial government stocks, &c., are not numerously altered, but mostly on the upward direction. Natal Inscribed is  $\frac{1}{2}$  down, but this is the only decline, whilst the following are higher, viz., Victoria Inscribed, 1; Canaia Registered,  $\frac{1}{2}$ ; Cape of Good Hope Inscribed,  $\frac{1}{2}$ ; and Queenland Inscribed,  $\frac{1}{2}$ . Home Corporation Stocks continue to appreciate where changed at all. Without any movement of a contrary character, the following are higher: Bolton Three and Half per Cent., 1; Hull Three and Half per Cent., 1; Birmingham Three and Half per Cent., 1; Liverpool Three and Half per Cent.,  $\frac{1}{2}$ , and Nottingham Three per Cent.,  $\frac{1}{2}$ . Foreigners are mostly higher where changed also.—Higher: Brazilian Four and Half per Cent., 1 $\frac{1}{2}$ ; Mexican Six per Cent., 2; Italian Rentes  $\frac{1}{2}$ ; Egyptian Unified  $\frac{1}{2}$ ; Spanish Four per Cent.,  $\frac{1}{2}$ ; Turkish D  $\frac{1}{2}$ , and Portuguese Three per Cent.,  $\frac{1}{2}$ . Miscellaneous sections, in the presence of interest being absorbed in other market, have furnished but a comparatively meagre number of transactions, and irregularity in prices is the rule to which there are few exceptions. Of listed business here, but little has been done save in Ship Canals and some banks.

BANKS have changed hands frequently, in Consolidated District and Midland District, Unions and Salfords. Otherwise hardly anything doing. Changes in prices contradictory, and of no moment, save for rise of  $\frac{1}{2}$  in National Provincial.

INSURANCE.—Business trifling, and changes about divided between higher and lower.

COAL, IRON, &c.—Market neglected, prices not being changed on either side to an extent worth naming.

COTTON SPINNING, &c.—Shares quite dull, and only here and there is there any definite test of prices current.

MINES.—De Beers are exceptions, with a rise of  $\frac{1}{2}$ , other changes being on the downward side.

BREWERIES.—Guinness 6 up, Allsopps 1 $\frac{1}{2}$  down. Beyond these the only alterations are advances of  $\frac{1}{2}$  on Hardy's, and  $\frac{1}{2}$  on Bodington's.

MISCELLANEOUS.—Ship Canals, in which a fair number of transactions are reported, are a little better on both issues for the week, but they do not maintain best points of the week, the better prices having brought in sellers. Imperial Continental Gas have a rise of 5, and Gas Light and Coke A of 8. Rylands are put  $\frac{1}{2}$  to  $\frac{1}{2}$  up, and Suez Canals are called 1 better. Salt Unions easier. Manchester carriage issues  $\frac{1}{2}$  up all round.

LATER (4 P.M.).—Home rails rather lower again to-day, but in most cases at finish are a bit improved on lowest figures. For Americans, the outside rules the course of prices, and reflections here give lower figures again. Mexican issues have gained in value to a fair extent.

SCOTCH MINING AND INDUSTRIAL COMPANIES  
SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (January 31), writes:—During the past week there has been less business doing, owing partly to the intervening account. Prices are generally lower. Trade reports are still dull, but the Government programme for strengthening the navy at an expenditure of over six millions will likely help trade on the Clyde and other industrial centres.

In shares of coal, iron, and steel companies prices are steady. African coal are at 6s. to 6s. 6d.; Ebbw Vale, 7s.; Steel Company of Scotland, 40s.; and Stewart and Clydesdale, 7s. 15s.

In shares of copper concerns prices are lower. The sales are said to be on French account, but it is not known whether they are simply to close accounts or have any connection with the forthcoming dividends. Tharsis touched 89s., and Tinto 13s. 11s. Killifreth tin are at 20s. to 22s. 6d.

In shares of gold and silver mines a considerable amount of business has been done. Montans declined from 11s. 6d. to 9s. 9d. South Africans have been irregular, but if the returns for this month come out good it may rally the market. Those most in favour at present are Knights, Crescas, and May, while among the cheaper shares Lisbon, North Sheba, and La Plata are considered to have fair prospects. A large business has been done in Broken Hill from 35s. 9d. up to 44s. The rise is due to the publication of the report to be submitted at the meeting in Melbourne to-day, and the usual monthly dividend of 1s. per share has been declared. It appears the quantity of oxidised ore is sufficient to keep up the output for two years, during which time the silver market may improve or fresh ore bodies may be discovered. Mallina have also improved on favourable statements as to the richness of the property, while the machinery is said to be erected and the first returns due in a few weeks. Big Golden Quarry and Zwartland Transvaal wanted. African Land, 5s. 3d.; Aurora West New, 16s.; Balaghat, 5s.; Balkis, 4s. 6d.; Bechuanaland, 33s.; British South Africa, 42s.; Buffelsdoorn, 67s. 6d.; Bonnie Dundee, 14s.; Colon, 1s.; Consolidated Gold Mines of West Australia, 20s.; Coolgardie (Sherlaw), 6s. 9d.; Caratal, 1s. 8d.; East Rand, 48s. 3d.; Frank Johnson, 19s.; Goldfields Deep, 7s. 9d.; Gravel, 4s. 9d.; Guy Fawkes, 11s.; Glencairn, 7s.; Holcomb, 2s.; Idaho, 3s. 9d.; Klerksdorp, 6s. 6d.; Koboonga, 2s. 10s. 4d.; Londonderry, 8s. prem.; Lisbon, 4s. 9d.; Lower Roodepoort, 6s.; Luipaards Vlei, 15s.; Louis d'Or, 3s. 9d.; Langlaagte Block B, 17s.; Massi Kessi, 12s. 9d.; May, 46s. 3d.; Mozambique, 23s. 6d.; New Queen, 7s.; New Virginia, 4s. 9d.; Orion, 68s. 9d.; Otto's Kopje, 6s. 3d.; Orta, 2s.; Oceana, 45s.; Paarl Central, 25s. 6d.; Pardy's Mozambique, 48s.; Rhodesia, 8s.; Randfontein, 23s. 6d.; Roodepoort Deep, 48s. 9d.; Sheba, 33s. 6d.; Sutherland Reef, 23s. 6d.; South African Trust and Finance, 13s. 9d.; St. Helen's, Buluwayo, 35s.; Springdale, 3s. 1d.; Victoria and Altimira (pref.), 1s. 6d.; Wolhuter, 5s. 16s.; Willoughby's Development, 24s. 9d.; and Zapopan, 6s. 9d.

In shares of local and miscellaneous companies the rise in oil companies has been maintained on the announcement that a working agreement has been come to for three years between the Scotch Companies and the Standard Oil Company of America. Broxburn are at 9s. 5s.; Pumpherston, 5s.; and Young's, 26s. 6d. Lawe's Chemical, 7s. to 7s.

## EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of January 31st:—A fair amount of business has been transacted, but for the last few days the market has been much duller, and a fall has occurred in nearly all departments. In home railways, Caledonian Deferred has declined from 43s. 16 to 42s. North British from 39s. to 38s. 16. Glasgow and South Western 11s. 16 to 110. Great Northern Deferred from 56 to 51s. Chatham from 20s. 16 to 19s. 16. South-Eastern Deferred from 93s. to 89s. Bank shares have participated in the general weakness. Bank of Scotland have gone from 341 to 336, British Linen from 385 to 383, Royal from 227 to 226, Union from 21s. 16 to 21s. Insurance shares little changed. Royal have declined from 52s. to 52s. North British and Mercantile have improved from 39s. 16 to 40s. Caledonian from 28s. to 29s. London and Lancashire from 17s. to 17s. 16. Scottish Union and National A from 89s. 3d. to 90s. British South Africa shares have gone from 45s. 9d. to 42s. 6d. North of Scotland Canadian from 53s. 9d. to 51s. Scottish American Mortgage from 55s. to 52s. 6d. Stock Conversion from 16s. 6d. to 14s. 3d. Coal shares enquired for. Copper weak. In oils, Broxburn have risen from 9s. to 9s. 16. Dalmeny from 13s. to 14s. Linlithgow from 21s. 9d. to 22s. 6d. Pumpherston have declined from 6s. 16 to 5s. Young's from 27s. to 26s. Edinburgh United Breweries 10s. lower at 7s. Coats 2s. 6d. lower at 24s.

MINING IN CORNWALL  
AND DEVON:  
NOTES ON MINING IN THE WEST.

(BY OUR SPECIAL CORRESPONDENT).

THE revival in the Cornish Share Market, to which we alluded last week, did not prove permanent. The sharp decline in the price of mineral seemed to undo all the good that had been done, though the subsequent fluctuations gave the local market a firmer tone than had been apparent for some weeks. Sellers seem to have retired, preferring apparently to hold on a little longer in the hope of obtaining enhanced values. There has been more business doing, and there are plenty of indications to show that there is yet unbound confidence in the industry, in spite of the dark cloud under which it has lain so long.

IT is stated that the improvement at Cook's Kitchen is maintained, and that the lode is looking as well now as at the time of the meeting. It is being vigorously opened up and with the advantage of this extra tin, there seems to be every probability that Captain Josiah Thomas' promise of diminished loss being realised.

BOTALLACK MINE seems to be doomed. A special meeting of shareholders was held last week, called, apparently, for the purpose of immediately closing up the affairs of the company, but the purser and manager (Mr. A. James) reported that at the last moment there had been an improvement in the produce of the stuff, which led him to recommend the continuance of operations until the end of the quarter. The shareholders appear unwilling to abandon the mine at the present moment, though it seems to have been kept on some weeks more as a source of employment, than as a commercial undertaking on ordinary business lines. It was decided to continue the working for a month at least, at the expiration of which time another meeting of adventurers will be called. Whether this arrangement will be adhered to in view of the serious influx of water from some of the old workings is doubtful, and the probability is that Captain James will take immediate steps for the winding-up of the affairs of the mine.

A SUGGESTION was thrown out at the special meeting to the effect that a new company, on the Limited Liability principle, might possibly be found to take over the mine as a going concern, but the promoters of Whoal Owles and Boscombe having failed completely in a similar undertaking, commenced under much more favourable auspices, the proposal must be regarded as a very forlorn hope indeed. Botallack was at one time

the "show" mine of the county, and the plan still hanging on the walls of the account-house shows the place where the Princess of Wales broke some tin from the lode in one of the submarine levels, long since closed. During the present working nearly three times as much has been paid in dividends as has been called up. The mine is well equipped, and quite recently the shareholders made an outlay of several thousand pounds in improving the shaft and putting down a new skip road.

A VERY welcome improvement is reported in Carn Brea, where they have cut through the lode in the 334 fathom level crosscut, south of Harvey's shaft. The main leader is about 3 feet wide, and altogether the lode is about the size of the end. The agents announce that they will now commence to open out east and west on the course of the lode, and they expect that the lode will improve as they extend. It is a gratifying feature of this discovery that the lode is in line with that at Highburrow west. There is a good deal of whole ground between the two points, and if the lode does improve the prospects of the mine will be more hopeful than they have been for some time.

THERE has been a further improvement in Polberro since the meeting, particularly in the engine shaft, thus bearing out the predictions of the manager at the recent general meeting.

THE LIONSDALE ESTATES (LIMITED).—An extraordinary general meeting of this company was held at Winchester House, on Wednesday, for the purpose of sanctioning the sale or lease by the directors of any portion or portions of the company's property for a consideration, consisting in whole or in part of shares, debentures, or other interest in any company having like object or objects in common with this company; and so that such shares, debentures, or other interests may either be held by the company or distributed amongst its members in proportion to their holdings, and for the purposes aforesaid, or any of them, to confer such general or special powers on the directors of the company as to the said meeting may seem expedient.—Mr. J. F. Torr, who presided, in moving a resolution to the above effect, said that they had taken advantage of the opportunity afforded by the departure for South Africa of one of their largest shareholders to get him to visit the property and make a report. His report made them quite confident that everything was being done in the most satisfactory manner by their manager. The water races were completed on the 8th of October; and some 40,000 trees had been planted. An electric installation for power and light had been laid down, the motive power being, as in every case on the mine, water. The machinery arrived on the 23rd October, the wet season being responsible for the delay in transporting it from Johannesburg; it was now in course of erection, and from the latest reports it was pretty clear that they were on the point of crushing, or already doing so.—Mr. Hamilton reported in a letter, dated December 27, 1894, as follows:—“The face of the drive still improves as I anticipated, and I expect in next letter (or possibly by cable) to give a good account of the mine. The battery, as far as stamp, frames, shafting, &c., is finished. The feeders are now being fixed, and next week we shall be working on the tables. Everything is going on well.” The Lion reef was now being worked towards the junction, and a second air shaft had been sunk. There were 11 Europeans and 46 Kaffirs at work on the mine, tramways had been laid, and everything was being done to ensure successful working. The latest assays were 8 dwt. to the ton, and as, by reason of their exceptional facilities for working, it was estimated that 3 dwt. would pay cost of extraction, &c., there were 5 dwt. profit on each ton. Referring to the object of the meeting, the Chairman said that it had been found necessary to obtain the powers sought, as at present the directors had only power to deal in cash, and there were many cases in which it would be expedient to sell portions of the property for shares, or for part shares and part cash.—Mr. Harrington Smith seconded the motion, which was unanimously agreed to. A hearty vote of thanks to the Chairman closed the meeting.

COMPANIES AND LEGAL  
ANNOUNCEMENTS.

\* Advertisements are inserted in this column at the rate of 9d. per line with a minimum charge of 7s. 6d.

THE BUFFELSDOORN ESTATE AND GOLD  
MINING COMPANY (LIMITED).

## NOTICE.

THE JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY (LIMITED) give NOTICE that they have been appointed the LONDON AGENTS of the Buffelsdoorn Estate and Gold Mining Company (Limited), and that on and after February 1, 1895, all TRANSFER BUSINESS in connection with the said Company will be transacted at their Offices, No. 7, Lothbury, E.C.

By Order,

THOS. HONEY, Secretary to London Agents.

7, Lothbury, London, E.C.

1st February, 1895.

## WANTED.

\* Prepaid Advertisements are inserted in this column at the rate of 9d. per line with a minimum charge of 4s.

## RE-APPOINTMENT WANTED.

A OVERHEAD MANAGER, or charge of Extraction Plant in Gold Mines. Just home after 5 years' contract in Chili. Experience of treatment of ore, where there is scarcity of water, Dry Grinding, Lührig Concentration, Amalgamation, &c., 4 years assistant with London firm of assayers, &c., to Bank of England and H.M. Mint. Well up in prospecting work; Fellow of Chemical Society; speaks Spanish; high testimonials.

C. W. LEE, Oaklands, Dewsbury.

## MINING ENGINEER.

A COMPETENT MANAGER, of over 20 years' Colonial experience, trained in the German School of Mines, and holding excellent Colonial credentials, and with good London references, is open to an ENGAGEMENT for Western Australia, South Africa, or elsewhere.

## METROPOLITAN MINE.

Report by Mr. ALFRED LEWIS, M.E.

IT is proposed to increase the capital of this company to £165,000 by the creation of 65,000 new shares; 14,000 shares will be paid for the purchase of seven claims from the Rand Mines, and this will make the block more compact, and can be considered a good bargain for this company, as these claims are certainly worth more than £4000 a claim, which is over the present value of the 14,000 shares that are now being given for them. 35,000 shares are guaranteed at 30s.

A consideration of 3500 shares is given to the guarantors, and 12,500 shares are held in reserve. This scheme can be considered highly satisfactory to the shareholders, as it will put the mine on a decent footing, and the managers of this company, Messrs. Ad. Goertz and Co. (Limited), deserve every credit for their energy in bringing this mine from the rubbish heap to its present position. It will be seen before long that dividends, and not reconstructions, will be the result. If anyone had predicted this future 12 months ago it would have been very much doubted, but it is another case of good management, careful sorting of the ore, and, better still, improvement in the reefs as they are opened up.

The company owns 17 claims in the western section, 16 in the eastern section, seven claims from the Rand Mines, and one claim from Henry Nourse—when these two latter companies have given the transfer, of which there is little doubt. The eastern section is as yet unopened, and this is the only case where there is maiden ground on the central section of the Rand, and when it is opened up there is no doubt that it will be very rich, and will be the best part of the mine, and will give higher profits per ton than the western section, where the ore has improved from 5 to 8 dwt. An extra 10 stamps have been started, and the whole of the old stamps are to be replaced with heavier ones, so this will make a great difference in the output and profits; and as the mine is fairly developed, it is possible that in the near future another 10 stamps will be started. There are about 80,000 tons of ore in sight, which has all been charged for at the rate of 5s. 2d. per ton, but as it has not cost more than 3s. 8d., a certain amount has been taken from the profits (which would be other companies have been thrown in). This is a very good way of working a mine, as it is frequently the case when investors have bought shares on the amount of profits that a mine makes monthly, and they often find that they have not got a high enough percentage when dividends are declared.

The cost of working per ton in the past was as high as 3s. 9d., and it has been reduced to 2s. 10d., a reduction of 9s. 11d. per ton, and this speaks volumes for the management, and I do not know whether this has been beaten on the Rand in such a short time. It is quite probable that this will be reduced to 2s. as time goes on. The company has rented the tailings and received two-thirds of the profits, which should be 3s. per ton, and this, together with about 7s. 6d. profit from the battery, is practically assured.

The surface works are very good, and the heavy debt will be done away with under the increased capital, so this will mean saving the interest on the debt of £40,000. Taking the western section of 17 claims (near the George Goch Mine and with reefs of the same grade as the latter mine with which 50 stamps make a profit of over £3200 a month, and likely to be increased), then the Metropolitan, when it gets into good working order, should do as well, and it would not be surprising if in the future this company paid at least 20 per cent. in dividends, and if extra stamps are erected, 30 per cent. could be paid.

The eastern section is the richest, and this can be seen from the returns from the Henry Nourse, which does not crush within 20 per cent. of the same amount of ore, and yet yields a profit of nearly £3000 per month (this will be improved upon when the mine is in better working order), and the same returns can be expected from this section of the Metropolitan—in fact, it is only reasonable to expect a greater profit than the Nourse, as the drives can be extended from the present main shaft, and immense bodies of ore developed at a very low cost.

The tonnage of ore in each claim is fully 30,000 tons, and as they have 41 claims on the reef, this will give 1,230,000 tons of ore on the property.

It is sure that the stamping power will, in time, be increased, so the mine will be a greater gold producer than it is at present, and it is certainly one of the very few mines that is not up to its intrinsic value. It would be well for investors to look around, and change their holdings from some of the top-heavy shares into mines of this class that are about entering into the dividend-paying stage, as there is more that are about their best, and could not carry any more stamping power, and, therefore, cannot increase their rate of dividends. There are, also, mines that will hardly return their capital invested at present prices, and others that will only give 2 per cent. after the capital is returned.

JODELITE.—This is the registered name of an effective and cheap preservative against rotting, decay, &c., which has been brought before our notice, and made by J. Dee, 5, Cross-street, Manchester. It would appear that the action of this preservative is of a twofold character—mechanical and chemical. In the first case, by reason of its specific gravity, it expels the water or moisture from capillary channels and prevents it from afterwards penetrating the wood, and the ingredients in the preservative also protecting the wood from atmospheric influences such as dampness, &c. The preservative is applied hot—about boiling point—and evaporates the water and moisture, the vacuum thus caused facilitating impregnation. The chemical action of "Jodelite" is found in its antiseptic nature, it containing a good percentage of strong antiseptic bodies, which have the effect of coagulating all nitrogenous substances. It is claimed by the maker of "Jodelite" that it fulfils all the conditions of an efficient and economical preservative of wood against all injurious influences, both internal and external; and is also a certain cure for damp walls, house fungus, and preserves hemp ropes, making them tough and very pliable. For all outdoor and buried wood-work, and for all wood exposed to the action of salt or fresh water and diluted acids, this substance is decidedly of great service. No skilled labour is required in its application, the important point being that the crosscuts of the wood or timber should have a liberal quantity applied, and, in some instances, allowed to soak, such as wood paving blocks. All insects avoid wood treated with "Jodelite."

GERMANY'S PRODUCTION OF PIG IRON FOR 1894.—The Association of German Iron and Steel Makers publishes the following statistics:—The output of pig iron in the German Empire (including Luxembourg) amounted in December last to 498,233 tons, being an increase of 16,324 tons on the previous month, and of 49,502 on December, 1893, or about 11 per cent. The December output included 146,217 tons of puddling and spiegel iron, 38,115 tons of Bessemer pigs, 239,239 tons Thomas pigs, and 74,632 tons of foundry pigs. For the whole year 1894 the output of raw iron has been 5,559,322 tons, against 4,953,148 tons in 1893, an increase of 606,174 tons, or 12.3 per cent.

## TIN TICKETING.

A TICKETING for tin ores was held at Tabb's Hotel, Redruth on Tuesday, with the following result:—

## VALUES OF ORES SOLD BY EACH MINE.

	Tons cwt.	Per ton.	Value.
Dolcra-h	14 0	£37 5 0	£521 10 0
do No. 1a	13 0	37 10 0	487 10 0
do No. 1b	13 0	37 15 0	490 15 0
Wheal Grenville a	18 0	38 10 0	693 0 0
do b	18 0	37 15 0	679 10 0
do No. 2	4 0	23 12 6	94 10 0
Tincroft	15 0	31 17 6	478 2 6
do	15 0	32 5 0	483 15 0
Carn Brea No. 1	3 0	22 7 6	67 2 6
do No. 1a	16 0	32 15 0	524 0 0
do No. 2	15 0	33 2 6	496 17 6
South Frances No. 1	14 0	37 7 6	523 5 0
do No. 1a	13 0	37 10 0	487 10 0
East Pool No. 1	17 0	32 12 6	554 12 6
do No. 2	2 0	15 10 0	31 0 0
Wheal Basset No. 1	15 0	37 17 6	568 2 6
Killifrath	15 0	36 12 6	549 7 6
West Francis	13 0	36 5 0	471 5 0
West Kity	13 0	38 5 0	497 5 0
Phoenix United No. 1	10 0	37 0 0	370 0 0
do No. 2	2 0	28 10 0	57 0 0
Wheal Agar	10 0	33 2 6	331 5 0
South Condurrow	8 0	38 17 6	311 0 0
	277 10	£9802 18 9	
	Average price per ton £35 6s. 6d.		
	AVERAGE PRICES PER TON.		
Oct. 23	£38 11 1	Dec. 18	£35 9 5
Nov. 7	37 15 6	Jan. 1	33 0 2
Nov. 20	37 12 4	Jan. 15	33 12 11
Dec. 4	35 10 10	Jan. 29	35 6 6

E. HENRY DAVIES, F.G.S.,  
CONSULTING MINING ENGINEER,

## 6, GREAT WINCHESTER STREET, LONDON, E.C.

Author of "Machinery for Metalliferous Mines."

Joint Author of "Metalliferous Mines and Mining."

"Earthy and other Minerals and Mining."

Undertakes the INSPECTION and MANAGEMENT of MINES at home and abroad, and the introduction of approved Properties to Capitalists.

Minerals of all descriptions purchased in large or small quantities.

## AUSTRALIAN MINERALS.

COLLECTIONS of AUSTRALIAN MINERALS for Show Case or for technical purposes supplied to order. Price from £2 2s. upwards. On receipt of order with remittance a collection will be made up and dispatched without delay.

## MINES REPORTED ON.

## J. B. AUSTIN, Mineralogist, Adelaide, S.A.

This day, Large Crown Svo, with Diagrams and Working Drawings, 7s. 6d., Cloth.

## THE CYANIDE PROCESS

FOR THE

EXTRACTION OF GOLD;  
and its Practical Application on the Witwatersrand Gold Fields in South Africa.

By M. EISSELER, Mining Engineer.

Author of "The Metallurgy of Gold," &amp;c.

LONDON:

CROSBY LOCKWOOD and SON, 7, Stationers' Hall Court, E.C.

## TO LET.

\* Prepaid Advertisements are inserted in this column at the rate of 8d. per line with a minimum charge of 4s.

## COLLIERY TO LET, IN MONMOUTHSHIRE, GAS AND STEAM COALS, 12 MILES FROM NEWPORT.

TOTAL MINERAL AREA of principal seams unworked 1100 acres. PRESENT CAPACITY 500 tons per day, could be increased, LEASE FOR 17½ YEARS with probability of extension. ROYALITIES 7½d. per ton. Large and small coal. RAILWAY COMMUNICATIONS in every direction.

For further particulars apply to Messrs. COLBORNE, WARD, and COLBORNE, Solicitors, Victoria Chambers, Newport, Mon.

## SHIPPING.

## UNION LINE.



FOR SOUTH AFRICAN GOLD FIELDS.—WEEKLY SERVICE.—CAPE OF GOOD HOPE, NATAL, and EAST AFRICAN ROYAL MAIL STEAMERS.—THE UNION STEAMSHIP COMPANY'S ROYAL MAIL and INTERMEDIATE STEAMERS will sail as follows for the SOUTH and EAST AFRICAN PORTS, to ZANZIBAR, calling at LISBON, MADEIRA, and TENERIFE.

Steamers.	Antwerp.	Rotterdam.	Hamburg.	Southampton.
Joseph (t. screw)	Jan. 27	—	Feb. 2	Feb. 9
Mexican	—	—	—	Feb. 16
Gaul (t. screw)	—	Feb. 15	Feb. 16	Feb. 23
Tartar	—	—	—	Mar. 2

Calling at Madras, Via Lisbon and Tenerife, to East Africa.

Free railway tickets from London and Plymouth to Southampton.

Cheap Tickets are issued for Passengers' Friends.

The Union Line Express is despatched from Waterloo Station (Main Line Platform) every Saturday.

## RETURN TICKETS ISSUED.

Apply to the UNION STEAMSHIP COMPANY (Limited), Canute Road, Southampton; 14, Cockspear Street, London, S.W.; and South African House, 94 to 96, Bishopsgate Street Within, London, E.C.

## CASTLE LINE.—CAPE &amp; NATAL MAILS.



WEEKLY SERVICE FOR THE GOLD FIELDS OF SOUTH AFRICA.—The CASTLE COMPANY'S STEAMERS leave LONDON (East India Dock Basin, Blackwall) every FRIDAY, and sail from SOUTHAMPTON every SATURDAY.

Steamers.	London.	Southampton.
Roslin Castle (via Madras)	Feb. 8	Feb. 9
Arundel Castle (via Canaries)	Feb. 15	Feb. 16
Dunottar Castle (via Madras)	Feb. 22	Feb. 23
Marie Castle (via Canaries)	Mar. 1	Mar. 2

For Madagascar and Mauritius.

Return tickets to all Ports.

Free Tickets by Castle Express from Waterloo to Southampton.

Apply to DONALD CURRIE and Co., 3, Fenchurch Street, London, E.C.

West End Agency, THOS. COOK AND SON, 18, Cockspear Street.

## ROYAL MINING ACADEMY

## AT CLAUSTHAL.

## SESSION, 1894-95.

The LABORATORY COURSES commence on the 1st APRIL, and the LECTURES for the SUMMER SIX MONTHS on the 18th APRIL, 1895.

Prospectuses free on application to the Directors of the Royal Mining Academy.

By Order of the Directors.

CLAUSTHAL, 26th January, 1895.

## MACARTHUR-FORREST PROCESS.

## TO MINE OWNERS AND OTHERS

Having REFRACTORY GOLD ORES hitherto untreatable at a profit, the MACARTHUR-FORREST (PATENT) PROCESS OF GOLD EXTRACTION offers a solution of the difficulty.

The chief features of this Process are:—

## SIMPLICITY, ECONOMY IN WORKING, and SMALL COST OF PLANT.

PROPRIETORS:—

## The Cassel Gold Extracting Co. (Ltd.)

Head Office—108a, Hope Street, Glasgow.

London Office—23, College Hill, Cannon Street, E.C.

Africa—The African Gold Recovery Co. (Ltd.), Johannesburg.

Australia—The Australian Gold Recovery Co. (Ltd.), 8, Post Office Chambers, Sydney, N.S.W., Charters Towers, Queensland, and Mr. Geo. S. Fowler, J.P., Adelaide.

United States—The Gold and Silver Extraction Co. of America (Ltd.), Denver, Colo.

Mexico—The Mexican Gold and Silver Recovery Co. (Ltd.), 2a, Calle de Providencia, No. 7, Mexico City, Mexico.

Chili—Mr. Wm. Jones, Calle Almendro, Valparaiso.

New Zealand—The Cassel Gold Extracting Co. (Ltd.), 205, Victoria Arcade, Auckland.

Canada—Mr. W. Pellow Harvey, F.C.S., 717 and 719, Fender Street, Vancouver City, British Columbia.

The CASSEL GOLD EXTRACTING Co. (Ltd.) are manufacturers of CYANIDE, suitable for the MacArthur-Forrest Process.

For terms, apply at Head Office of the Company, 108a, Hope Street, GLASGOW.

## THE WEST AUSTRALIAN REVIEW

## BUSINESS CARDS.

## AERIAL ROPEWAYS.

"OTTO" SYSTEM.

R. E. COMMANS (late Commans and Co.), 6, Queen Street Place, London, E.C.

## ASBESTOS.

THE UNITED ASBESTOS COMPANY (Limited), Dock House, Billiter Street, London, E.C. Asbestos Goods of the highest quality.

## CONCENTRATORS.

THE CLARKSON-STANFIELD CONCENTRATOR (Limited). New system for the treatment of gold, silver, copper, lead, and other ores. Address, 6, Colonial Avenue, Minories, London, E.

## EXPLOSIVES FOR MINING.

NOBEL'S EXPLOSIVES COMPANY (Limited), Glasgow. Manufacturers of Gelignite, Gelatine - Dynamite, Dynamite, Detonators, Electric Detonator Fuses, &amp;c., &amp;c.

## IRON BUILDINGS.

ISAAC DIXON &amp; CO., Liverpool. Iron roofs, Houses, and mining machinery buildings of every description.

## WOOD PRESERVATIVE.

Reg. "JODELITE." Reg.

Not applied under pressure. The Best and Cheapest Preventive of Decay, Dry Rot, and the attack of White Ants in Timber. Manufactured by JOSEPH DEE, 5, Cross Street, Manchester.

## LUBRICATING OILS AND RAILWAY AND STEAMER GREASES.

F. J. KUHNE,

NEW YORK, and 30, GREAT ST. HELE'S LONDON, E.C.

Represented by WM. J. PATTISON.

## METAL PERFORATORS, &amp;c.

J. &amp; F. POOL,

METAL PERFORATORS &amp; WIRE WEAVERS COPPERHOUSE, HAYLE, CORNWALL.

SPECIALITIES: All descriptions of Perforated Metal Plates, Stamps' Battery-Screens, Wire Gauze and Sieves for Foreign and Home Mining, and other Purposes. Export orders carefully and promptly executed.

## MINING INSTRUMENTS.

JOHN DAVIS &amp; SON, All Saint's Works, Derby; and 118, Newgate Street, London. Mathematical instruments and miner's safety lamps.

## MINING MACHINERY.

FRASER &amp; CHALMERS (Limited), 43, Threadneedle Street, London, E.C. Mining machinery of the most approved design.

GEORGE GREEN, The Foundry, Aberystwyth. Every description of Mining Machinery. Specialities—Crushing and Concentrating Plants, Gold Mills, &amp;c.

ROBEY &amp; CO. (LIMITED), Manufacturers of Steam Engines, Mining Machinery, &amp;c. Makers of the Robey Patent Automatic Expansion Gear.—Globe Works, Lincoln.

## ORE DRESSING MACHINERY.

THE LÜHRIG COAL AND ORE DRESSING APPLIANCES (LIMITED),

32, VICTORIA STREET, LONDON, S.W.

COMPLETE DRESSING PLANTS for Gold, Silver, Lead, and Copper Ores, &amp;c., designed and erected.

LÜHRIG SINGLE AND COMPOUND VANNERS for Low Grade Ores and Tailings.

IMPROVED BREAKERS, ROLLS, JIGS, AND SEPARATING DRUMS.

Tests made with Samples at London Works Free of Charge.

## ROCK DRILLS.

RICHARD SCHRAM &amp; CO., 17a, Great George Street Westminster, S.W.

## STONEBREAKING MACHINERY.

W. H. BAXTER, Engineer, Leeds. Stone breaking and ore crushing machinery. All highest awards received for 12 years. Guaranteed for economy in power, efficiency and durability over all others. Catalogues free.

GATES IRON WORKS, 73a, Queen Victoria Street, E.C. The Gates Rock and Ore Breaker effects a great saving in power.

## TUBE MAKER.

GEO. J. CHATTERTON, manufacturer of lead pipe, block tin pipe, and tinned composition gas tube, Caledonian Road, London, N.

## TURBINES.

G. GILKES and CO., Kendal, Makers of The Vortex Turbine.

CORNISH POST AND MINING NEWS, A HIGH-CLASS UNIONIST NEWSPAPER.

Specially devoted to Cornish Mining, upon which it contains the fullest and most reliable information published. It is the only eight-paged newspaper printed in the Mining Division of Cornwall.

ISSUED EVERY FRIDAY MORNING,  
PRICE ONE PENNY.

The Cornish Post and Mining News Co. (Limited), East Charles Street, Camborne, Cornwall

## BREAKFAST-SUPPER.

EPPS'S  
GRATEFUL-COMFORTING.

## CO COA

BOILING WATER OR MILK.

## PUBLICATIONS.

Prepaid Advertisements are inserted in this column at the rate of 8d. per line, with a minimum charge of 4s.

A HANDB-BOOK of GOLD MILLING. By HENRY LOUIS, A.B.S.M., F.G.S., &amp;c.

"It is a valuable companion, and should be found on the shelves, not only of the man in charge of the mill, but also of the student and mining engineer."—*The Mining Journal*."We have no hesitation in cordially commanding Mr. Louis's work as an all-round excellent work on gold milling and gold mining machinery."—*Mechanical World*."The author shows thorough familiarity with his subject, and expresses himself clearly and concisely in not too technical language."—*Nation*.

Crown Svo., PRICE 10s. net.

THE GOLDEN QUARTZ REEFS of AUSTRALIA.

By WILLIAM NICHOLAS, F.G.S., with Illustrations. A series of Articles especially relating to the Bendigo Gold Field, Victoria.

PRICE 2s., Post Free.

A NEW GUIDE TO THE IRON TRADE, OR MILL MANAGERS' AND STOCK TAKERS' ASSISTANT. By JAMES ROSK, of Batman's Hill Ironworks. Second Edition. Comprising a Series of New and Comprehensive Tables, practically arranged to show at one view the Weight of Iron required to produce Boiler Plates, Sheet Iron, and Flat, Square, and Round Bars, as well as Hoop or Strip Iron of any dimensions, to which is added a variety of Tables for the convenience of Merchants, including a Russian table.

"The Tables are plainly laid down, and the information desired can be instantaneously obtained."—*The Mining Journal*."900 copies have been ordered in Wigan alone, and this is but a tithe of those to whom the book should commend itself."—*Wigan Examiner*."The work is replete on the subject of underground management."—*M. BANEK*.

PRICE 8s. 6d.

THE COLLIERY READY-RECKONER and WAGES CALCULATOR. By JAMES IRELAND.

"Will be the means of preventing many disputes between pay clerks and colliers."—*The Mining Journal*.

PRICE 1s. 6d., Post Free.

TACKNOTE: A FORM OF LICENCE TO EXPLORE AND SEARCH FOR MINES, MINERALS, &amp;c. Price 1s., post free.

NOTES ON THE PHILIPPINE ISLANDS: A PAMPHLET REPRINT. By FRANK KARUTH, F.R.G.S. Price 6d.

LONDON:

"THE MINING JOURNAL,"  
18. FINCH LANE, E.C., and  
3, DORSET BUILDINGS, SALISBURY SQUARE, E.C.The SCIENTIFIC PUBLISHING CO.,  
(OF NEW YORK and LONDON.)

20, BUCKLERSBURY, LONDON, E.C.

MODERN AMERICAN METHODS OF COPPER SMELTING. By Dr. E. D. PEIERLS. 8th Edition, 1891. Price, 2s. 6d. Fully of specially prepared illustrations of modern plants and processes.

"The book is full of information and devoid of the ordinary text-book objections; it bears throughout the stamp of having been written by a practical man thoroughly up in his subject. No metallurgist should be without it for purposes of information and reference."—*Engineering*.

THE METALLURGY OF LEAD and the DESILVERIZATION OF BASE BULLION. By Dr. H. O. HOFMAN. Third Edition, 1891. Price 30s. Containing 275 illustrations taken from working drawings of the most modern plants.

"As a complete epitome of recent practice in lead smelting, the book will be gladly welcomed by the whole metallurgical world."—*Industries*.

THE METALLURGY OF STEEL. By HENRY M. HOWE, A.M., S.B. Third Edition, 1891. Price, 50s.

"The work itself is simply enormous, unmatched in its minute and thorough-going comprehensiveness."—*Chemical News*."We cannot refrain from most urgently recommending the study of this hyper-eminent work to our readers."—*Stahl und Eisen*.THE MINERAL INDUSTRY: Its Statistics, Technology and Trade; being the Annual Statistical Supplement of *The Engineering and Mining Journal*, Vol. I. from the earliest times up to the end of 1892. 12s. 6d., Vol. II, up to the end of 1893. 25s."The spirited policy of *The Engineering and Mining Journal* cannot be too greatly praised or its example too soon followed. Their enterprise in publishing this statistical volume, which also details up to date the progress made in all branches of metallurgy and mining, is worthy of the fullest recognition and encouragement."—*From Professor A. K. Huntington's Presidential Address to the Institution of Mining and Metallurgy*, London, March 21st, 1894.

A Complete Catalogue of the Company's Publications will be sent free on Application.

THE ADELAIDE OBSERVER.

Mining men and others in all parts of the world, who wish to secure the most complete budget of Australian news, and particularly of Mining Intelligence, will do well to have THE ADELAIDE OBSERVER regularly posted to them.

Special attention is given to Mining operations in Western Australia as well as in all other parts of Australia.

THE ADELAIDE OBSERVER, Price Sixpence. Posted abroad, 7s. 6d. per quarter, or £1 10s. per annum.

HEAD OFFICE—GREENFELD STREET, ADELAIDE, SOUTH AUSTRALIA.

LONDON OFFICE—80, FLEET STREET.

THE OBSERVER is a splendid medium for Advertisements of Mining Machinery and requisites.

Advertisements received by all the principal London Agents or at the London address, given above.

ONLY GOLD MEDAL FOR ALLOYS, INVENTIONS EXHIBITION.

"PHOSPHOR-BRONZE." (Cog Wheel Brand)

The Best Alloys for all Wearing parts of Machinery, Bearings, &amp;c.

BEWARE OF ALL IMITATIONS, &amp; SPECIFY THE COMPANY'S MAKE.

BULL'S METAL, Ingots, Forgings, Castings, Stampings, Rods and Sheet.

Specially adapt for Mining Work.

The Phosphor Bronze Company, Ltd.  
87, SUMNER STREET, SOUTHWARK, LONDON, S.E.

## TURBINES.

The well-known "LITTLE GIANT" for developing Water Power with any fall from 3 feet and upwards.

CATALOGUES FREE.

S. HOWES,  
64, MARK LANE, LONDON.

Telegrams: BARBEAU, LONDON.

BENNETT'S



Sold under Copyright Label bearing Trade Mark.

A Distinguishing Feature in these Goods is THREE SEPARATE CENTRE THREADS IN THE COLUMN OF POWDER. The make may always be recognised by these Threads, and users are cautioned to look for them and see that they have the Genuine Article.

MANUFACTURED BY

WILLIAM BENNETT, SONS, & CO.,  
ROSKEAR FUSE WORKS,  
Camborne, Cornwall.

TELEGRAMS: FUSE, CAMBORNE.

The COUNTY GENTLEMAN'S PAPER for Cheshire, Shropshire, and North Wales is  
THE CHESTER COURANT.  
(ESTABLISHED 1730.)

The CHESTER COURANT goes into all the best houses, and has a Subscription List of remarkable scope and character. It is a most suitable medium for advertising Patent Machinery used on large Farms or County Estates.

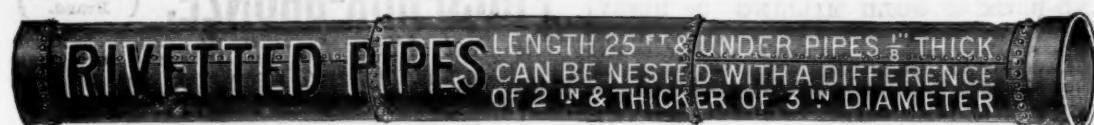
THE UNITED ASBESTOS CO. (Limited),  
DOCK HOUSE, BILLITER STREET, LONDON, E.C.

PIONEERS of the ASBESTOS Trade. The ONLY COMPANY in the WORLD owning and working Asbestos Mines both in ITALY and CANADA. All goods are made at our Works, near London, and are of the best possible description. SPECIFY "SALAMANDER" BRAND.

Depots: NEWCASTLE-ON-TYNE, Quay Side; MANCHESTER, 34, Deansgate; LIVERPOOL, 33, James Street; GLASGOW, 54, Robertson Street; CARDIFF, 135, Bute Street; BRISTOL, Provident Buildings, Clare Street; ST. PETERSBURG, Gostinie Dvor, (interior) No. 51.



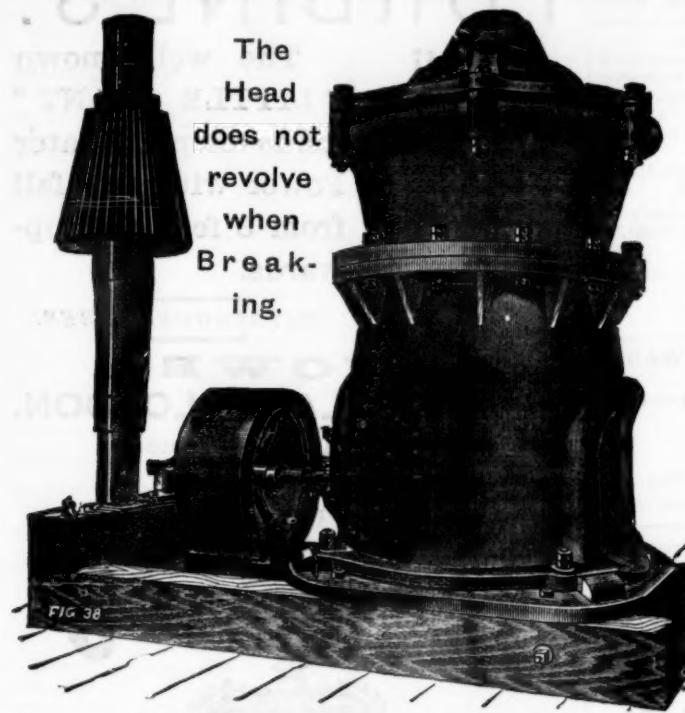
# THOMAS PIGGOTT & Co., Ltd., ATLAS WORKS, BIRMINGHAM.



Welded and Riveted Pipes, from 8 inches diameter upwards, for Conduit of WATER, GAS, AIR, and other purposes  
Large Quantities have been Sold for Mining Purposes and for Conducting Water to Turbines.

London Office:-

14, GREAT ST. THOMAS APOSTLE, E.C.  
Telegraphic Address:-  
"INTERSECTION," LONDON.



Manufacturers of Mining Machinery and complete Macadam Plants.

## GATES ROCK AND ORE BREAKER.

Capacity in Tons of 2000 Pounds.

Size 0—2 to 4 tons per hour.	Size 3—10 to 20 tons per hour.	Size 6—30 to 60 tons per hour.
“ 1—4 to 8 ”	“ 4—15 to 30 ”	“ 7—40 to 75 ”
“ 2—6 to 12 ”	“ 5—25 to 40 ”	“ 8—100 to 150 ”

Passing 2½ in. ring, according to character and hardness of material.

**GREAT SAVING IN POWER.** Adjustable to any Degree of Fineness.

The principle involved in this Breaker acknowledged to be the greatest success ever introduced into Stone Breaking machinery.

Send for Catalogue, containing over 500 references of Contractors, Miners, Railway Companies, Cement Makers, etc.

By the use of this machine cubical road metal can be produced at a low cost.

## GATES IRON WORKS (A)

73a, QUEEN VICTORIA STREET, E.C., LONDON, ENGLAND.

44, Dey Street, New York, U.S.A.

WORKS: 50, South Clinton Street, Clybourn Ave and Willow Street, Chicago,  
"AGENTS FOR GATES CORNISH ROLLS PULVERISER."

Simple, Durable, Compact, Dustless, giving a Finished Product direct from the Machine. The best Ore Granulator for Leaching and Concentrating in the World.

## "VALVE-OLEINE: "

675 DEGREES FIRE TEST.

MASTER MECHANICS, Purchasing Agents, Engineers and Practical Builders of costly Steam Plants and Locomotives &c., will be pleased to know that a Lubricant is now produced of such extraordinary high Fire Test as to make it proof against the great heat to which it is subjected, and is, therefore, a PERFECT LUBRICATOR where products of lower grade and fire tests pass off at once, leaving the parts subjected to wear, or greatly increasing the consumption of oil.

"VALVE-OLEINE" is a product in the highest state of filtration, of the greatest viscosity, is entirely free from all acids and absolutely non-corrosive, and without doubt the finest and most thoroughly reliable CYLINDER LUBRICANT now on the market, and will naturally Lubricate 200 to 300 per cent. more than products of lower test.

It is not only the BEST but the most ECONOMICAL lubricant. Manufacture and Sale controlled exclusively by

The Reliance Oil and Grease Co.,  
CLEVELAND, OHIO, U.S.A.

AGENTS WANTED EVERYWHERE.

Write for Full Particulars and our New Catalogue of large line of products.

SAMPLES FREE.

Send 2 cent stamp for copy "Gems of Art." Free on application direct from Machinery Users.

Cable Address: "OLEINE," Cleveland, O.

## THE WEST BRITON AND CORNWALL ADVERTISER.

The best Family Newspaper for Cornwall and the West of England generally.

MONDAY AFTERNOON, 4 Pages, One Halfpenny.

THURSDAY AFTERNOON, 8 Pages, 56 Columns, One Penny.

The Largest and Most Influential Journal of Cornwall.

The Best Advertising Medium in the West of England.

The Largest Circulation of any Cornish Newspaper.

The "WEST BRITON" contains more reliable information respecting Cornish Mines than any other Newspaper.

HEARD and SONS, Publishers, Truro

## FRANCIS & JENKINS,

GREENFIELD WORKS, LLANELLY, SOUTH WALES.

Manufacturers of Steel-pointed Spades and Shovels, Draining and Grafting Tools, &c. Also Manufacturers of  
COPPER WORKS LADLES,

To which special attention is given. Rabble Heads, Paddles, and every description of Light Hammered Work.

THE HUMBOLDT ENGINEERING WORKS Co.,  
KALK, near COLOGNE. MAKERS OF  
MINING, ORE DRESSING & COAL WASHING  
MACHINERY.

COMPLETE PLANTS ALREADY SUPPLIED OF  
CAPACITIES UP TO 2000 TONS IN 10 HOURS.

REDUCING  
MACHINERY.  
PATENT  
LINKENBACH  
TABLES,  
for enriching  
Slimes & Sands.  
  
STAMP  
BATTERIES,  
SCREWS  
AND  
THOMMELS.



## THE IRON AND COAL TRADES' REVIEW.

With which is Incorporated

The Bulletin of the British Iron Trade Association.

The IRON AND COAL TRADES REVIEW is extensively circulated amongst the Iron Producers, Manufacturers, and Consumers, Coal Owners, &c., in all the Iron and Coal Districts. It is, therefore, one of the Leading Organs for Advertising every description of Iron Manufactures, Machinery, New Inventions, and all matters relating to the Iron, Coal, Hardware, Engineering, and Metal Trades in general.

Offices of the Review: 222-225, Strand, W.C.

Remittances payable to W. SHAW.

ESTABLISHED 1851.

## BIRKBECK BANK

SOUTHAMPTON BUILDINGS, CHANCERY LANE, LONDON.

TWO-AND-A-HALF per CENT. INTEREST allowed on DEPOSITS repayable on Demand.

TWO per CENT. on CURRENT ACCOUNTS on the minimum monthly balances, when not drawn below £100.

SAVINGS DEPARTMENT.

For the encouragement of Thrift, the Bank receives small sums on Deposit and allows Interest monthly on each completed £1.

The Birkbeck Almanack, with full particulars, post free.

FRANCIS RAVENSCROFT, Manager.

THE ENGINEERING AND MINING JOURNAL;  
Every Miner, Metallurgist, Investor in Mining Property, and every Dealer in Minerals and Metals should subscribe for it.

Contains everything of interest and value in mining and metallurgy. The fullest mining news. The best coal, metal, and mining stock market reports. It is the BEST ADVERTISING MEDIUM for all kinds of Machinery, Tools, Hardware, and Supplies used in the mining regions; for Electrical Appliances and Machinery; for Metals of all kinds; for Mining Property for Sale, &c. Subscription Price \$5.00 a Year for the United States, Canada and Mexico, \$7.00 a Year for other Countries in the Postal Union. Published Weekly.

THE SCIENTIFIC PUBLISHING COMPANY  
Booksellers and Publishers of Technical and Scientific Books.

253, BROADWAY, NEW YORK.

LONDON OFFICE: 20, BUCKLERSBURY, E.C.

# THE "DAW" ROCK DRILL.

Highest Award, International Exhibition of Mining and Metallurgy, London, 1890.



PATENT QUARRY BARS AND TRIPODS.

Improved Tunnel Columns.

Kohinoor Steel for Rock Drill and Miners' Borers.

On view at the Offices, where Catalogues, Estimates, and all Particulars can be obtained on Application.

**A. & Z. DAW,** Patentees and Sole Manufacturers, 11, QUEEN VICTORIA ST., LONDON, E.C.

Registered Telegraphic Address: "GULDNESS, LONDON." A.B.C. Code. Fourth Edition.

Representatives in South Africa: Messrs. BROWN and MCKENZIE, Johannesburg.

GOLD MEDAL, LONDON, 1892.  
GOLD MEDAL, MELBOURNE, 1881.

JOHN SPENCER, Globe Tube Works, WEDNESBURY, 14, Great St. Thomas Apostle, LONDON.



IRON and STEEL TUBES (lap or butt welded) and FITTINGS for Gas, Steam, Water, Hydraulic, Compressed Air, and Heating Purposes. Black or Galvanised in stock to 8 inches diameter. Boiler and Stay Tubes, Water Mains, Well Tubes, Pipe Lines, Telegraph Poles, Heating Coils, &c.

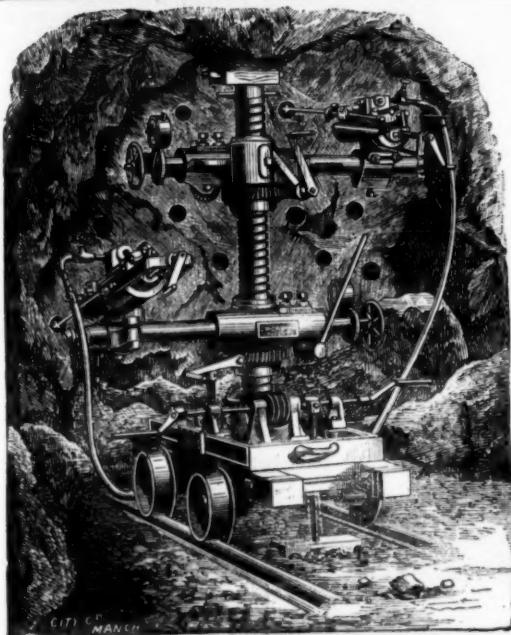
## THE MONTAN ZEITUNG

For Austria, Hungary, and the Balkan States, Graz (Austria), has the largest circulation of any technical paper on the Continent, and IS THE BEST MEDIUM to advertise English Machinery and Appliances for

**MINING, MANUFACTURING, AND ALL INDUSTRIAL PURPOSES**

throughout Austria, Hungary, Servia, Bulgaria, Roumania, Turkey Montenegro, &c.

For general information and scale of Advertisements, apply to F. MANSFIELD and CO., 2, Lion Chambers, BRISTOL



Patent Two-Armed Rock Drill Carriage.

THE PATENT "HIRNANT" MINING PLANT, ROCK DRILLS, ROCK DRILL CARRIAGES, AIR COMPRESSORS, STRETCHER BARS, COLUMNS, CLAMPS, AIR PIPES, &c.

NEW PATENT SINKING CARRIAGE, THE MOST RELIABLE MACHINERY KNOWN.

SOLE PROPRIETORS AND MAKERS:

**THOMAS LARMUTH AND Co.,  
Salford, Manchester.**

INTENDING PURCHASERS WAITED UPON PERSONALLY.

Agents for South Africa, Messrs. REUNERT and LENZ, Johannesburg.

## THE MINERS' SAFETY EXPLOSIVE CO., LIMITED,

SOLE MANUFACTURERS OF THE HIGH EXPLOSIVE

# AMMONITE,

SPECIALLY SUITABLE FOR COAL MINES FROM ITS FLAMELESSNESS; AND FOR ALL MINING & QUARRYING WORK FROM ITS GREAT POWER AND ABSOLUTE SECURITY IN HANDLING.

Ammonite is more extensively used than any other high Explosive in the principal fiery and dusty Mines in Great Britain.

THE CARTRIDGES ARE MADE UP IN METALLIC CASES OR WATERPROOF PAPER CASES.

AGENTS IN ALL THE PRINCIPAL DISTRICTS IN THE UNITED KINGDOM.

For full particulars apply to the Offices of the Company, 16, GREAT GEORGE STREET, WESTMINSTER.

THE CHEAPEST, BEST AND SAFEST EXPLOSIVES.

**ROBURITE for COAL MINES**  
**GATHURST POWDER FOR QUARRIES, METALS, AND CONTRACTORS' WORK,**  
SAVE TIME, LABOUR AND LIVES

THE ROBURITE EXPLOSIVES COMPANY, LIMITED.

103, CANNON STREET, LONDON, E.C. Works: GATHURST, near WIGAN.

Awarded the ONLY Gold Medal for Stonebreaker at the International Inventions Exhibition, in competition with all other makes.

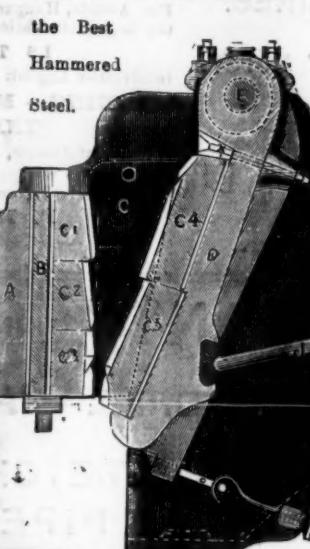
# THE BLAKE-MARSDEN 1884 Patent Lever Hand-Hammer Action Stonebreakers and Ore Crushers, NEW PATENT FINE CRUSHER OR PULVERIZER.

Fitted with Patent Reversible Cubing and Crushing Jaws in Five Sections, and with Surfaced Rocks, requiring no White Metal in fixing. Crucible Cast Steel Levers and Toggle Cushions, Brass or Gun Metal Bearings throughout.

OVER 5000 IN USE.

PULVERIZER TESTIMONIAL  
All Shafts and Axles are made of

the Best  
Hammered  
Steel.



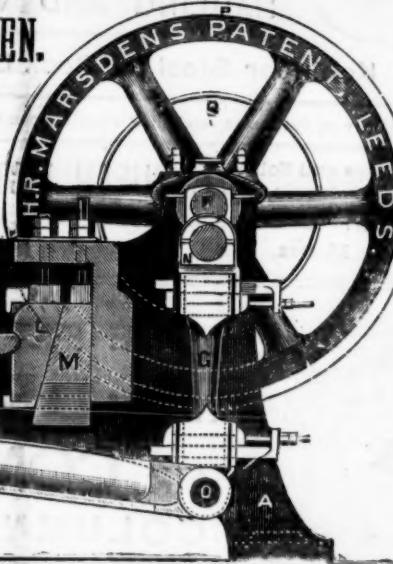
Positive Draw Back Motion taking no power to work, and entirely dispensing with the old expensive Steel Embedde . B Spring. The motion or length of Stroke of the Jaw can be increased or decreased at pleasure, to suit any material.

70 First-Class Gold and Silver Medals  
CATALOGUE FREE.

H. R. MARSDEN.

Soho Foundry,

LEEDS.



THIS HAND-HAMMER ACTION STONEBREAKER TAKES MUCH LESS POWER THAN ANY OTHER EXTANT.

## STONEBREAKERS AND ORE CRUSHERS TESTIMONIALS.

"We have great pleasure in testifying to the efficiency of the 15 in. by 8 in Lever Hand Hammer Motion Stone Breaker you supplied us with. We find that our 4 h.p. Engine with ease drives it 250 revolutions per minute, and breaks six ton per hour of the hardest "Diorite" Whinstone. The sample is much before any hand-breaker we have ever got done. Our Mr. P. J. GRAHAM, C.E., who was Surveyor of Highways for ten years, before joining your firm, says: It is by far the most economical machine he ever had to do with; he had two of your former make, and two of another firm's make; compared with these four machines your new patent gives the following advantages:—The horse-power required to drive is exactly 40 per cent. less. The sample of the broken macadam is so far superior to that broken by other machines, and even to that broken by hand that we can make no comparison. I is by far the best sample we have ever seen."

"I now order three of your Stone Crushers, & so 15 by 10, to be of your very best construction, and to include two extra sets of Jaws and Checks for each. The last two 24 x 13 machines you sent me, which are at work in this colony, are doing very well. You will soon find that the railway contractors will adopt your machines in preference to the colonial ones—two of which I have. I know other contractors have had as many as nine of them, which have not given very good satisfaction. Once they know of yours thoroughly, I believe you will do a good trade with the colonies. For reference of the high character of your constructions you can refer to me as having used them with the very best results, both in New Zealand and this colony, and much prefer them to the colonial article, both in point of construction and less liability to go out of order. The material we are crushing is very hard blue stone, for railway ballast purposes. Push on with the order as quickly as possible; I do not think it necessary to have any engineering inspection. I have brought your machines prominently under the notice of all large contractors in this colony, likewise the Government. Many of the contractors have spoken to me in reference to their capabilities, and could only tell them that they are by far and away the best and most economical I ever used. The very fact of me having purchased eleven from you at various intervals and various sizes, and two above 12 years ago, and having tried all the other makers is sufficient guarantee of the capabilities and the working of your machines. Yours in every way surpass all others."

## THE UNITY SAFETY FUSE CO.

ESTABLISHED 1846.

MANUFACTURERS OF ALL KINDS OF

### SAFETY FUSE

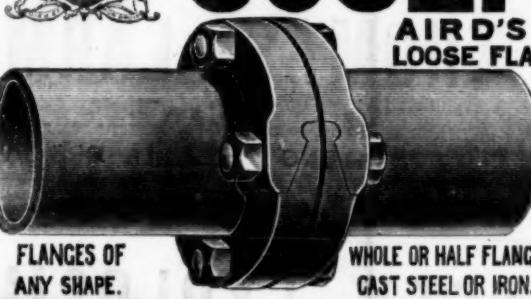
OF THE BEST QUALITY FOR USE IN  
MINING, QUARRYING, SUBMARINE,  
AND ALL OTHER BLASTING OPERATIONS.  
SPECIALY PREPARED to SUIT any CLIMATE.

Works: SCORRIER, CORNWALL.

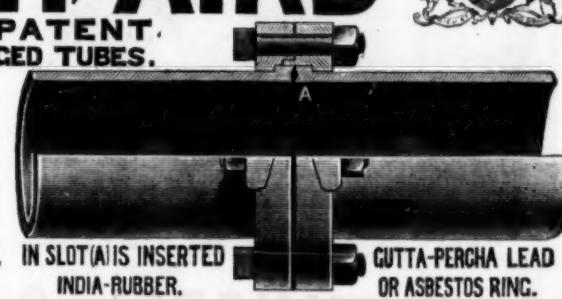


## JOSEPH AIRD

AIRD'S PATENT  
LOOSE FLANCED TUBES.



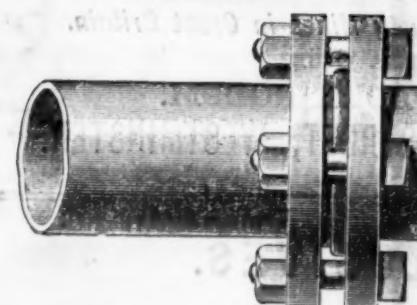
FLANGES OF  
ANY SHAPE.  
WHOLE OR HALF FLANGES,  
IN SLOT(A) IS INSERTED  
CAST STEEL OR IRON.



GUTTA-PERCHA LEAD  
OR ASBESTOS RING.

TUBE WORKS GREAT BRIDGE, STAFFORDSHIRE.

SPECIALITE:—ELECTRIC WELDING.

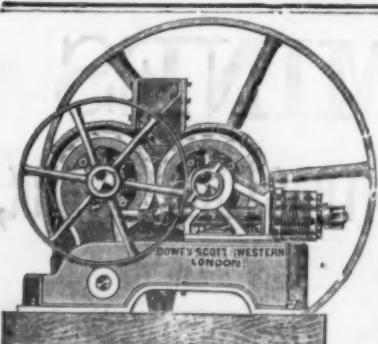


THE "ALBION" LOOSE FLANGED JOINT

WORKS:  
Albion Tube  
Works,  
BIRMINGHAM.  
Coombs Wood  
Tube Works,  
HALESOWEN.

WAREHOUSES:  
London—90, Cannon Street, E.C., and  
167, Upper Thames Street.  
Birmingham—Nile Street, Sheepcote  
Street, & 10, Coleshill Street.  
Liverpool—63, Paradise Street.  
Manchester—42, Deansgate.

IRON & STEEL TUBES  
FOR ALL MINING PURPOSES.



OFFICE:  
Broadway Chambers,  
WESTMINSTER.  
Telegraphic Address: 'DONBOWES.'

## MINING MACHINERY.

VANNERS.  
JIGS.  
AMALGAMATING PANS.  
SETTLERS & CLEAN UP PANS.  
SCREENS OF ALL KINDS.

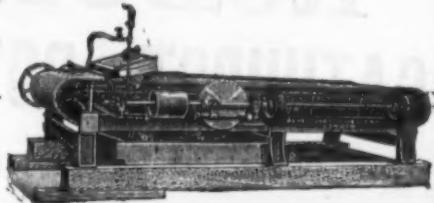
ENGINES SINGLE & COMPOUND, BOILERS OF ALL KINDS, TURBINES, &c.

CRUSHING ROLLS.  
STAMPS.  
BALL MILLS.  
ROASTING AND WATER JACKET-FURNACES.

AMALGAM RETORTS, &c.

ASSAYS CONDUCTED

SOLE LICENSEES AND MANUFACTURERS OF  
"Patent" KROM ROLLS.  
FOR FINE CRUSHING.  
BOWES SCOTT AND WESTERN (LIMITED).



SAMPLING WORKS,  
Phoenix Wharf,  
Church Road,  
LONDON."